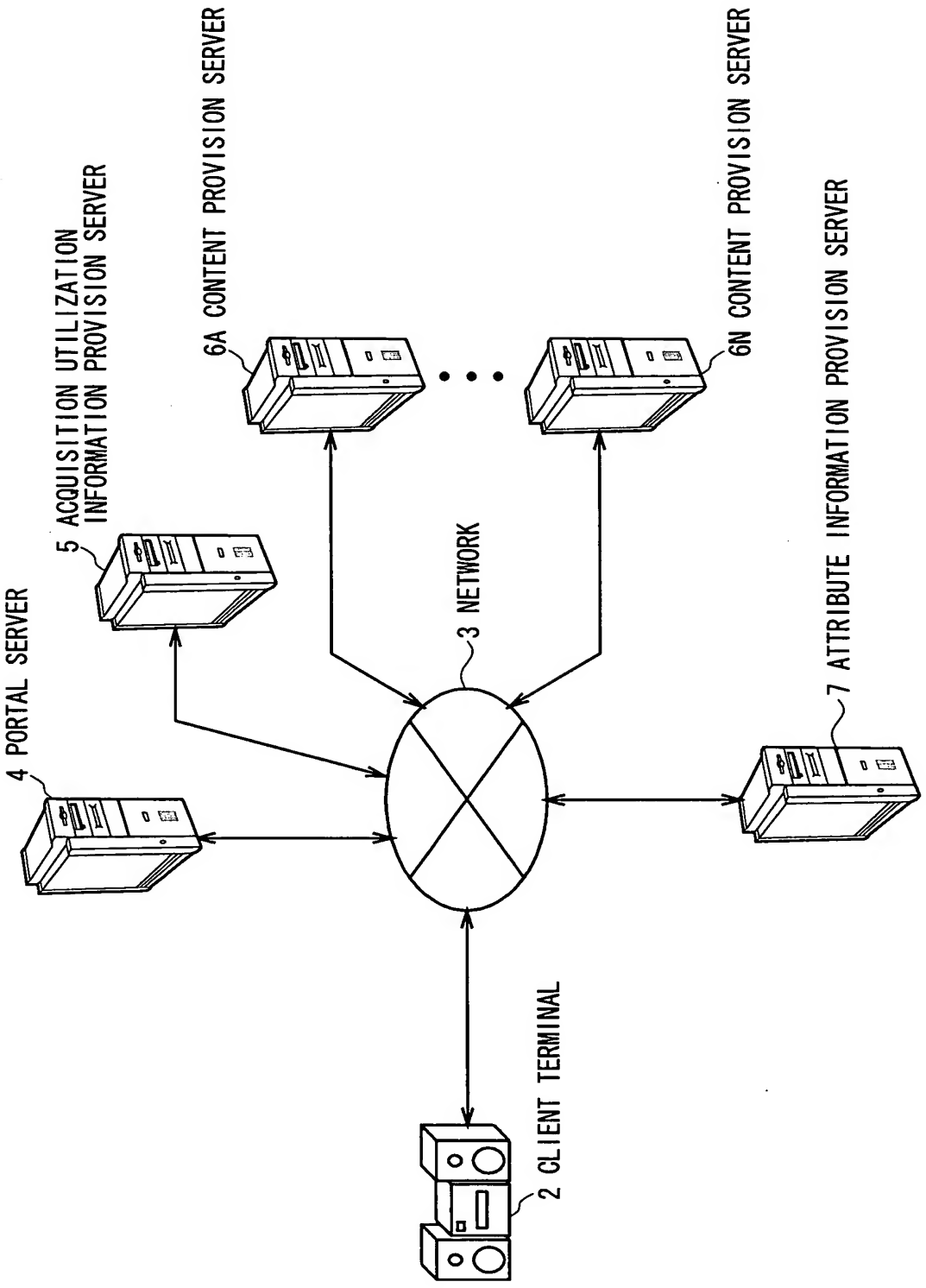
6A CONTENT PROVISION SERVER
6N CONTENT PROVISION SERVER
5 ACQUISITION UTILIZATION INFORMATION PROVISION SERVER
3 NETWORK
4 PORTAL SERVER
7 ATTRIBUTE INFORMATION PROVISION SERVER
1 DATA DELIVERY SYSTEM
2 CLIENT TERMINAL

FIG. 1

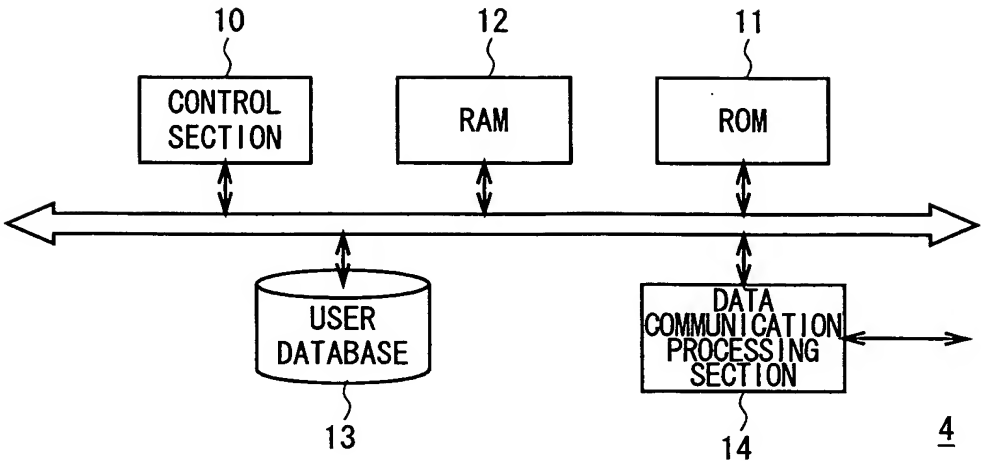
10
12
11
CONTROL SECTION
RAM
ROM
USER DATABASE
DATA COMMUNICATION PROCESSING SECTION
13
14
4

FIG. 2

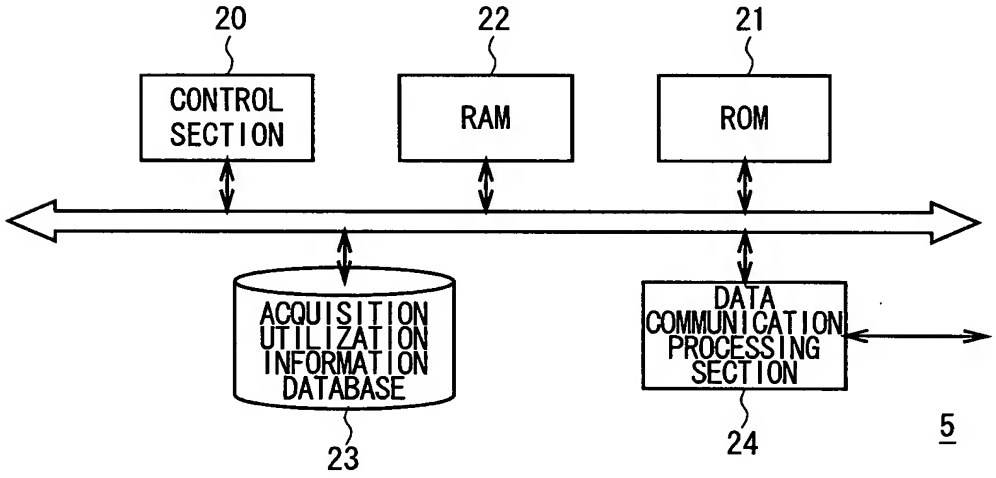
20
22
21
CONTROL SECTION
RAM
ROM
ACQUISITION UTILIZATION INFORMATION DATABASE
DATA COMMUNICATION PROCESSING SECTION
23
24
5

FIG. 3

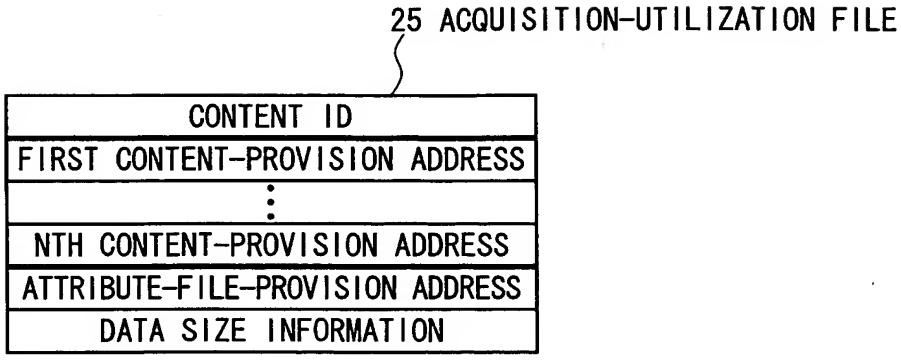
25 ACQUISITION-UTILIZATION FILE
CONTENT ID
FIRST CONTENT-PROVISION ADDRESS
NTH CONTENT-PROVISION ADDRESS
ATTRIBUTE-FILE-PROVISION ADDRESS
DATA SIZE INFORMATION

FIG. 4

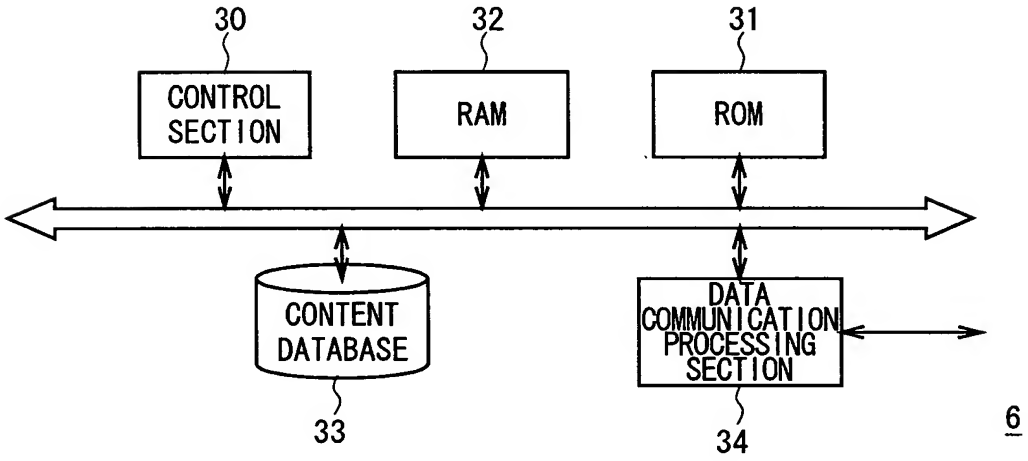
30
32
31
CONTROL SECTION
RAM
ROM
CONTENT DATABASE
DATA COMMUNICATION PROCESSING SECTION
33
34
6

FIG. 5

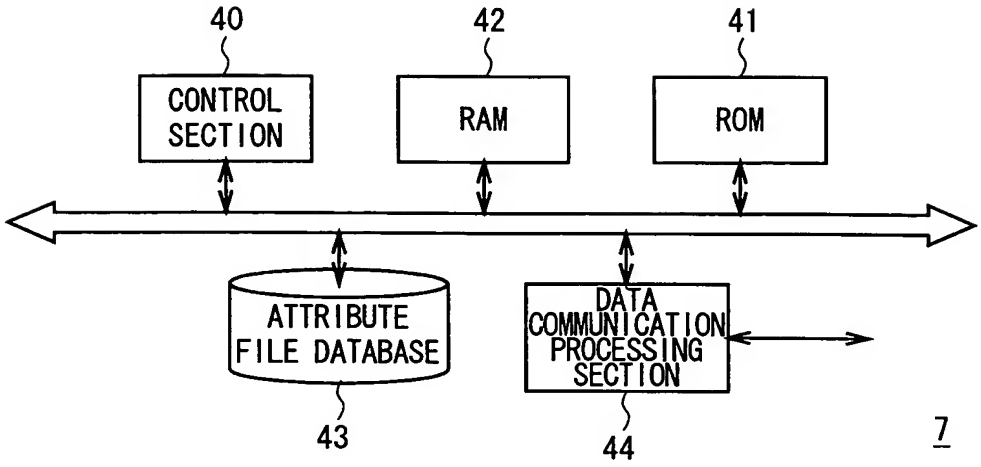


FIG. 6

47 CONTENT-ATTRIBUTE FILE

| CONTENT KEY |
|---|
| CODEC IDENTIFICATION VALUE |
| CODEC ATTRIBUTE |
| REPRODUCTION-LIMITATION INFORMATION |
| LEGITIMACY-CHECK FLAG |
| NUMBER OF CHECK-OUT TIMES |
| CODEC-DEPENDENCE INFORMATION |
| CONTENT ID |
| REPRODUCTION-ALLOWED-START DATE AND TIME |
| REPRODUCTION-ALLOWED-END DATE AND TIME |

FIG. 7

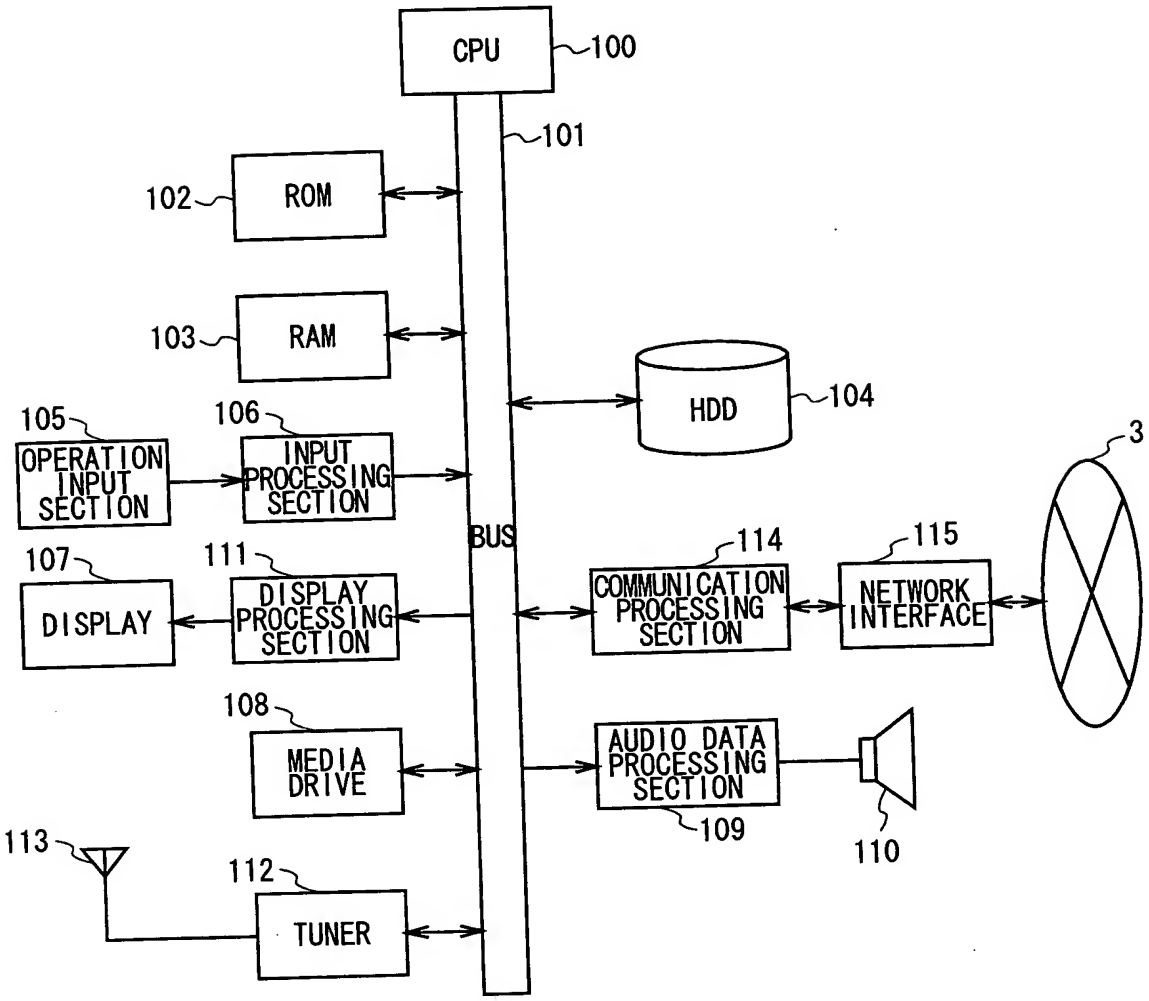
CPU
100
101
ROM
102
RAM
103
HDD
104
105
OPERATION INPUT SECTION
106
INPUT PROCESSING SECTION
3
BUS
107
DISPLAY
111
DISPLAY PROCESSING SECTION
114
COMMUNICATION PROCESSING SECTION
115
NETWORK INTERFACE
108
MEDIA DRIVE
AUDIO DATA PROCESSING SECTION
109
110
113
112
TUNER

FIG. 8

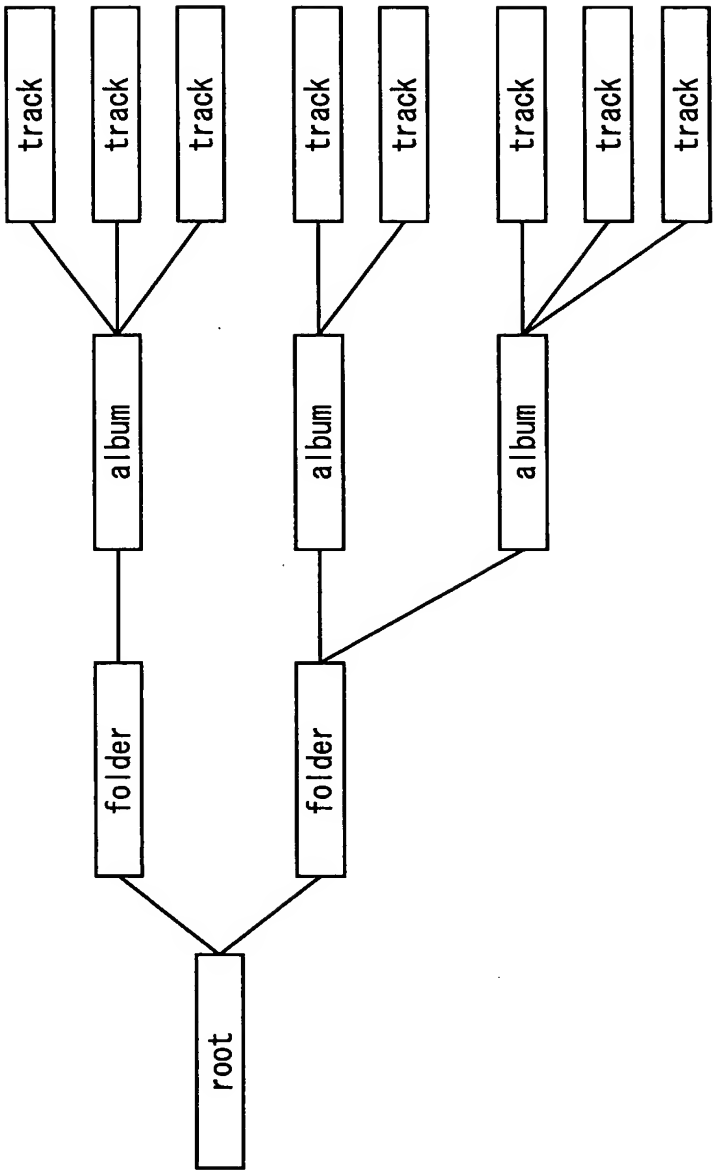
track
track
track
track
track
track
track
track
album
album
album
folder
folder
root

FIG. 9

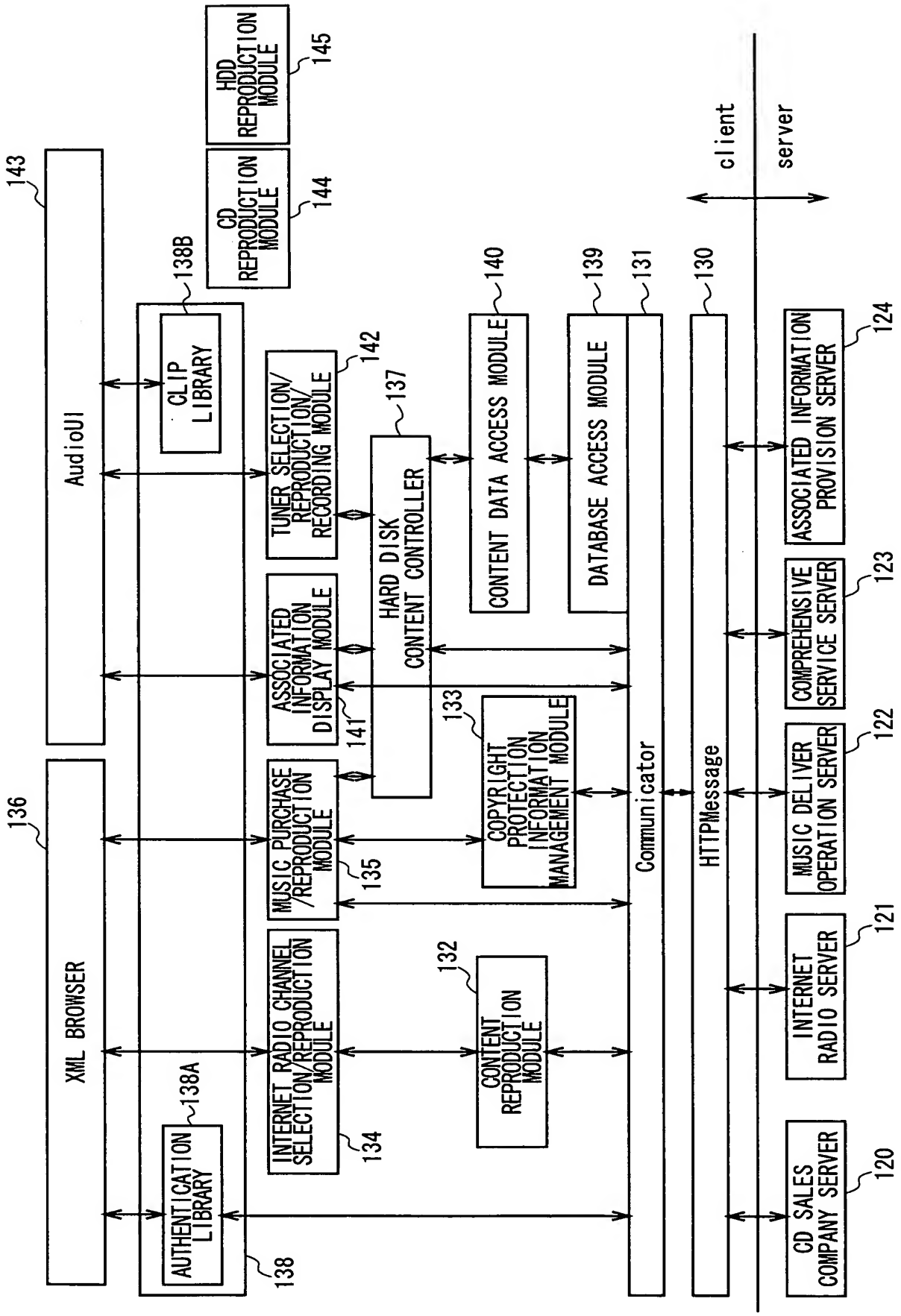
client
server
143
AudioUI
138B
CLIP LIBRARY
CD REPRODUCTION MODULE
144
HDD REPRODUCTION MODULE
145
142
TUNER SELECTION/ REPRODUCTION/ RECORDING MODULE
137
HARD DISK CONTENT CONTROLLER
140
CONTENT DATA ACCESS MODULE
139
DATABASE ACCESS MODULE
131
130
ASSOCIATED INFORMATION PROVISION SERVER
124
136
XML BROWSER
ASSOCIATED INFORMATION DISPLAY MODULE
141
133
COPYRIGHT PROTECTION INFORMATION MANAGEMENT MODULE
Communicator
HTTPMessage
COMPREHENSIVE SERVICE SERVER
123
MUSIC PURCHASE /REPRODUCTION MODULE
135
MUSIC DELIVER OPERATION SERVER
122
138A
AUTHENTICATION LIBRARY
INTERNET RADIO CHANNEL SELECTION/REPRODUCTION MODULE
134
132
CONTENT REPRODUCTION MODULE
INTERNET RADIO SERVER
121
138
CD SALES COMPANY SERVER
120

FIG. 10

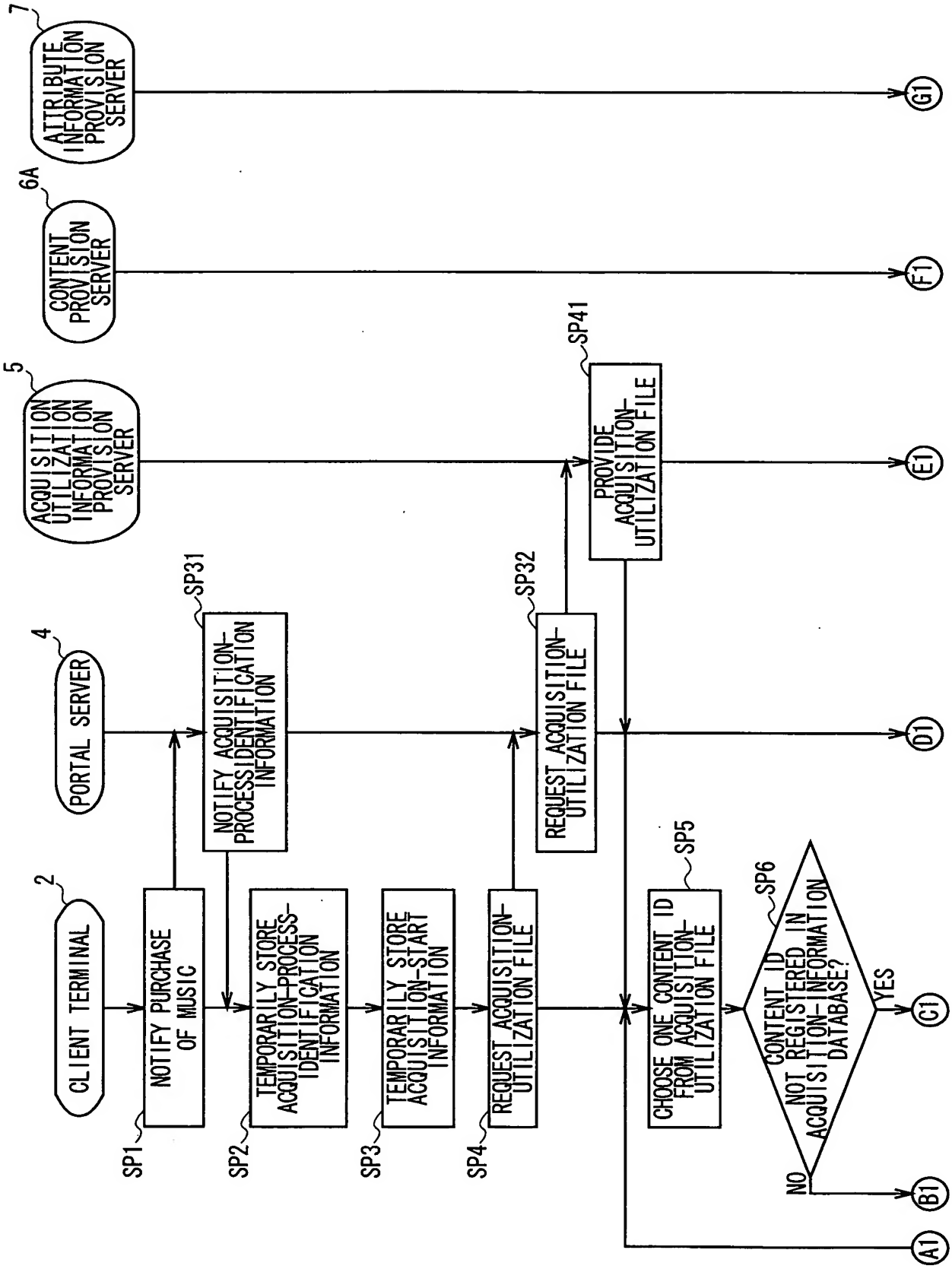
7
ATTRIBUTE INFORMATION PROVISION SERVER
6A
CONTENT PROVISION SERVER
5
ACQUISITION UTILIZATION INFORMATION PROVISION SERVER
4
PORTAL SERVER
2
CLIENT TERMINAL
NOTIFY PURCHASE OF MUSIC
SP1
NOTIFY ACQUISITION-PROCESS IDENTIFICATION INFORMATION
SP31
TEMPORARILY STORE ACQUISITION-PROCESS-IDENTIFICATION INFORMATION
SP2
TEMPORARILY STORE ACQUISITION-START INFORMATION
SP3
REQUEST ACQUISITION-UTILIZATION FILE
SP4
REQUEST ACQUISITION-UTILIZATION FILE
SP32
PROVIDE ACQUISITION-UTILIZATION FILE
SP41
CHOOSE ONE CONTENT ID FROM ACQUISITION-UTILIZATION FILE
SP5
CONTENT ID NOT REGISTERED IN ACQUISITION-INFORMATION DATABASE?
SP6
YES
NO
G1
F1
E1
D1
C1
B1
A1

FIG. 11

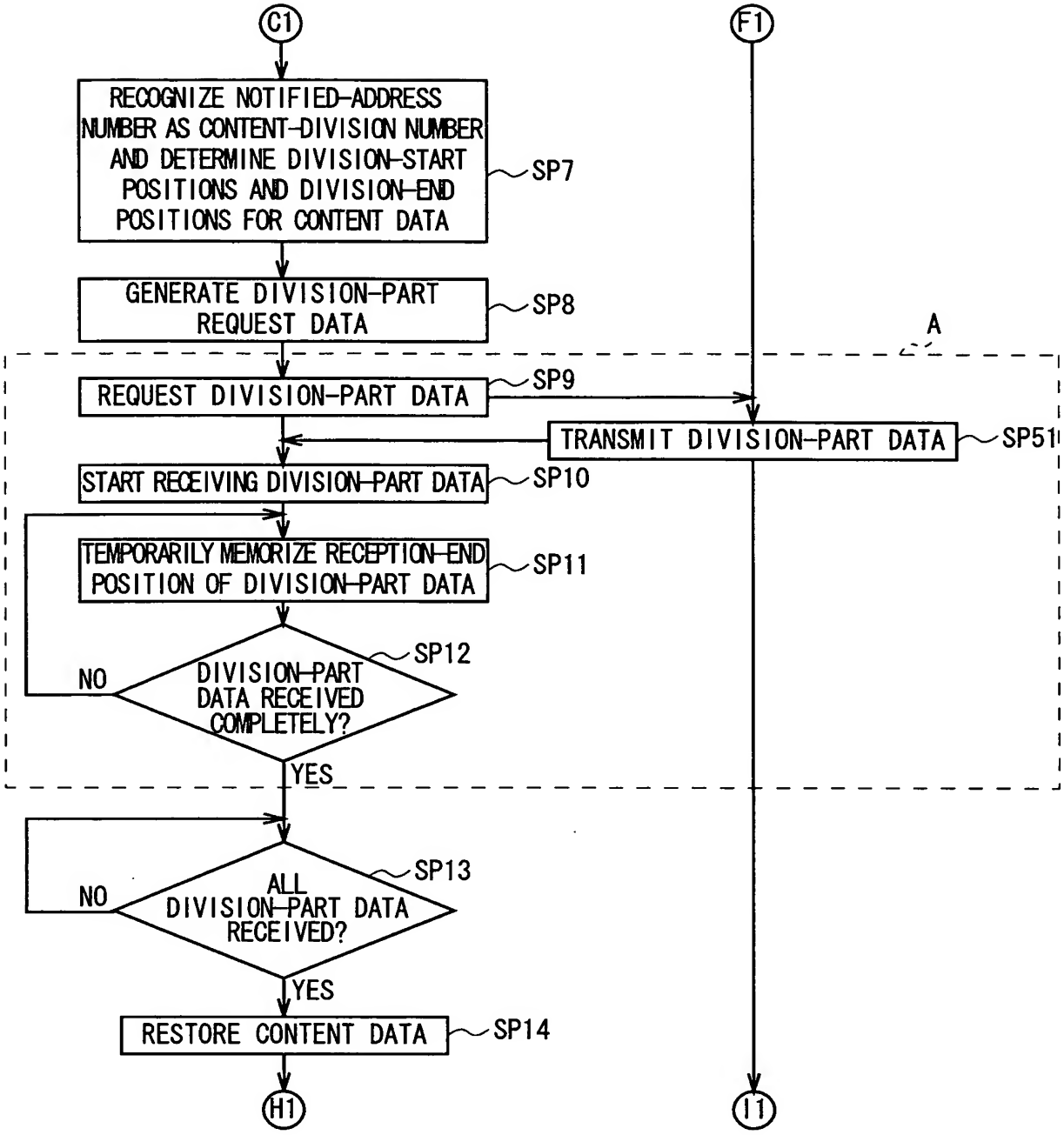
C1
F1
RECOGNIZE NOTIFIED-ADDRESS NUMBER AS CONTENT-DIVISION NUMBER AND DETERMINE DIVISION-START POSITIONS AND DIVISION-END POSITIONS FOR CONTENT DATA
SP7
GENERATE DIVISION-PART REQUEST DATA
SP8
A
REQUEST DIVISION-PART DATA
SP9
TRANSMIT DIVISION-PART DATA
SP51
START RECEIVING DIVISION-PART DATA
SP10
TEMPORARILY MEMORIZE RECEPTION-END POSITION OF DIVISION-PART DATA
SP11
DIVISION-PART DATA RECEIVED COMPLETELY?
SP12
NO
YES
ALL DIVISION-PART DATA RECEIVED?
SP13
NO
YES
RESTORE CONTENT DATA
SP14
H1
I1

FIG. 12

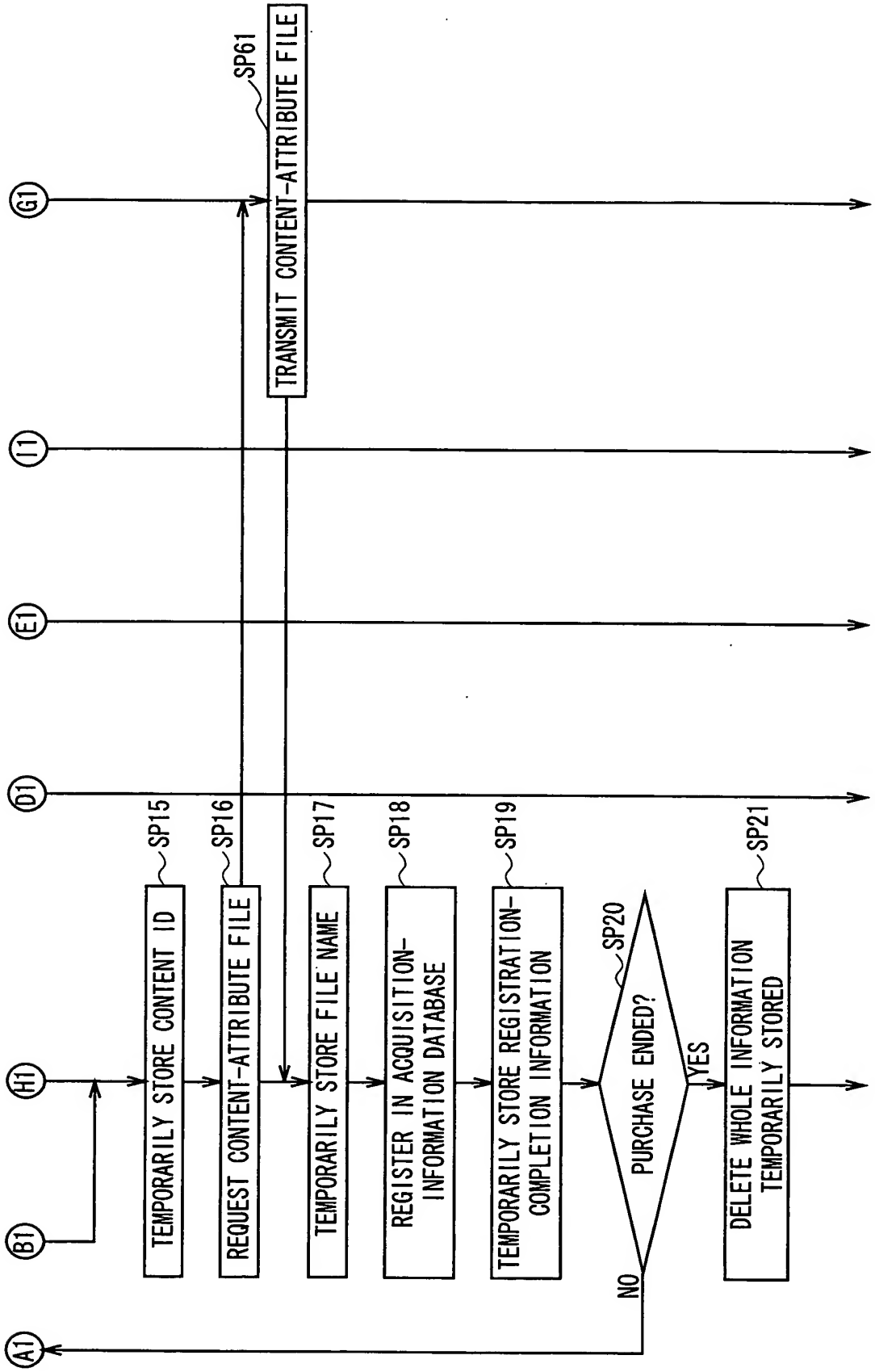
SP61
TRANSMIT CONTENT-ATTRIBUTE FILE
G1
I1
E1
D1
SP15
SP16
SP17
SP18
SP19
SP20
SP21
TEMPORARILY STORE CONTENT ID
REQUEST CONTENT-ATTRIBUTE FILE
TEMPORARILY STORE FILE NAME
REGISTER IN ACQUISITION-INFORMATION DATABASE
TEMPORARILY STORE REGISTRATION-COMPLETION INFORMATION
PURCHASE ENDED?
YES
NO
DELETE WHOLE INFORMATION TEMPORARILY STORED
H1
B1
A1

FIG. 13

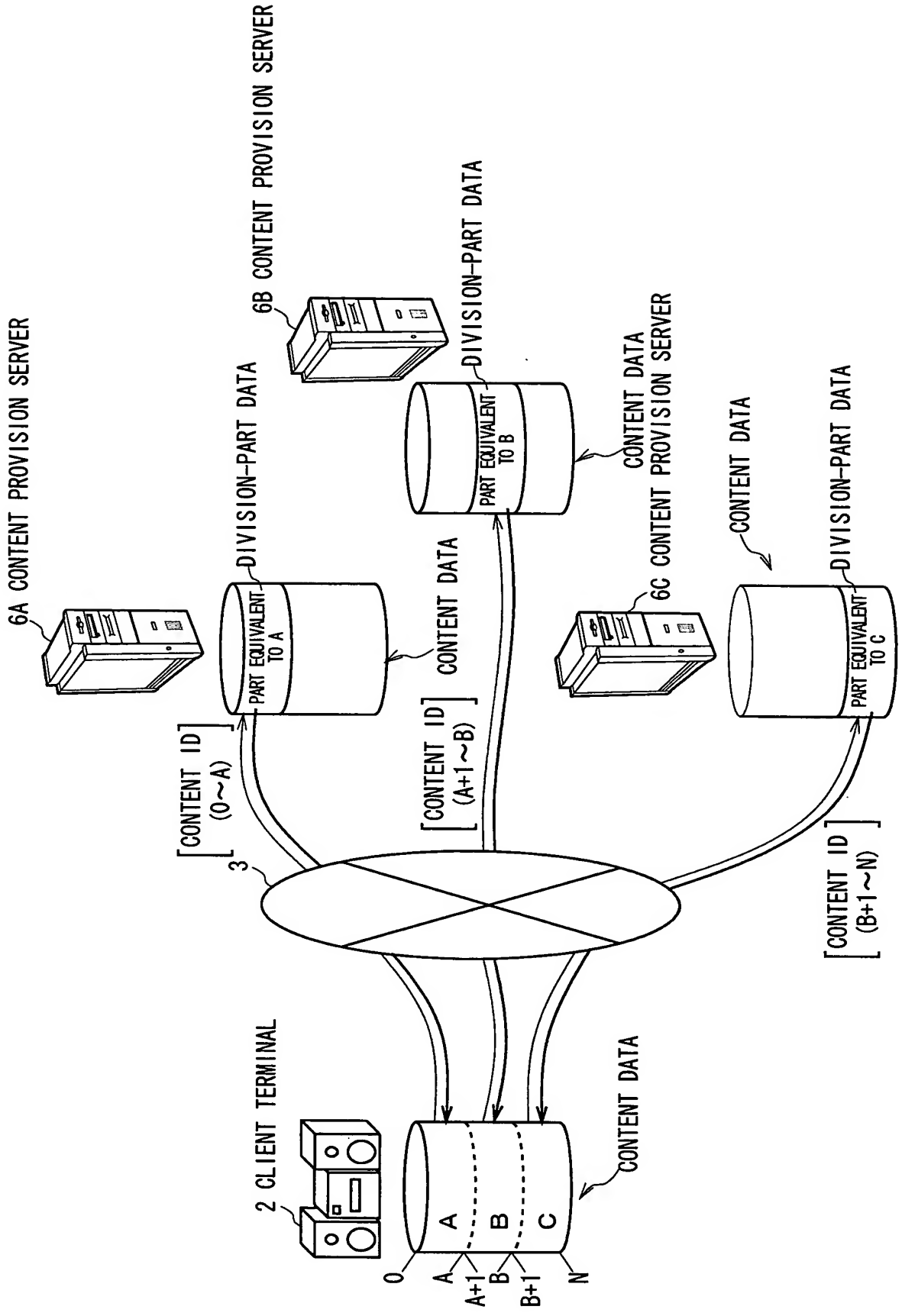
6A CONTENT PROVISION SERVER
6B CONTENT PROVISION SERVER
6C CONTENT PROVISION SERVER
DIVISION-PART DATA
PART EQUIVALENT TO A
CONTENT DATA
DIVISION-PART DATA
PART EQUIVALENT TO B
CONTENT DATA
CONTENT DATA
DIVISION-PART DATA
PART EQUIVALENT TO C
[CONTENT ID (0~A)]
[CONTENT ID (A+1~B)]
[CONTENT ID (B+1~N)]
3
2 CLIENT TERMINAL
CONTENT DATA
A
B
C
0
A
A+1
B
B+1
N

FIG. 14

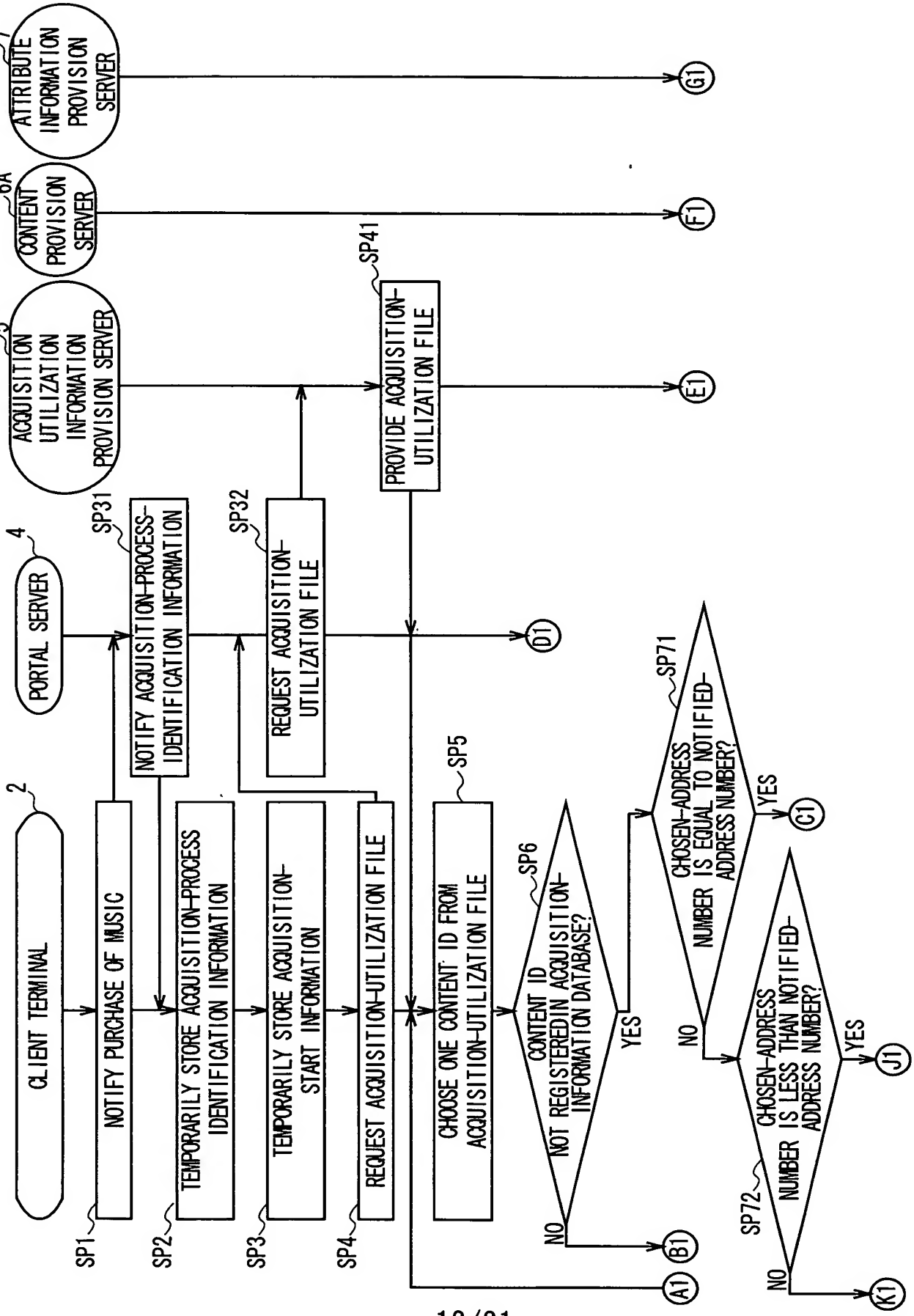
CLIENT TERMINAL
2
NOTIFY PURCHASE OF MUSIC
SP1
PORTAL SERVER
4
NOTIFY ACQUISITION-PROCESS-IDENTIFICATION INFORMATION
SP31
TEMPORARILY STORE ACQUISITION-PROCESS IDENTIFICATION INFORMATION
SP2
ACQUISITION UTILIZATION INFORMATION PROVISION SERVER
5
REQUEST ACQUISITION-UTILIZATION FILE
SP32
TEMPORARILY STORE ACQUISITION-START INFORMATION
SP3
REQUEST ACQUISITION-UTILIZATION FILE
SP4
CONTENT PROVISION SERVER
6A
PROVIDE ACQUISITION-UTILIZATION FILE
SP41
ATTRIBUTE INFORMATION PROVISION SERVER
7
CHOOSE ONE CONTENT ID FROM ACQUISITION-UTILIZATION FILE
SP5
CONTENT ID NOT REGISTERED IN ACQUISITION-INFORMATION DATABASE?
SP6
YES
NO
CHOSEN-ADDRESS NUMBER IS EQUAL TO NOTIFIED-ADDRESS NUMBER?
SP71
YES
NO
CHOSEN-ADDRESS NUMBER IS LESS THAN NOTIFIED-ADDRESS NUMBER?
SP72
YES
NO
A1
B1
C1
D1
E1
F1
G1
J1
K1

FIG. 15

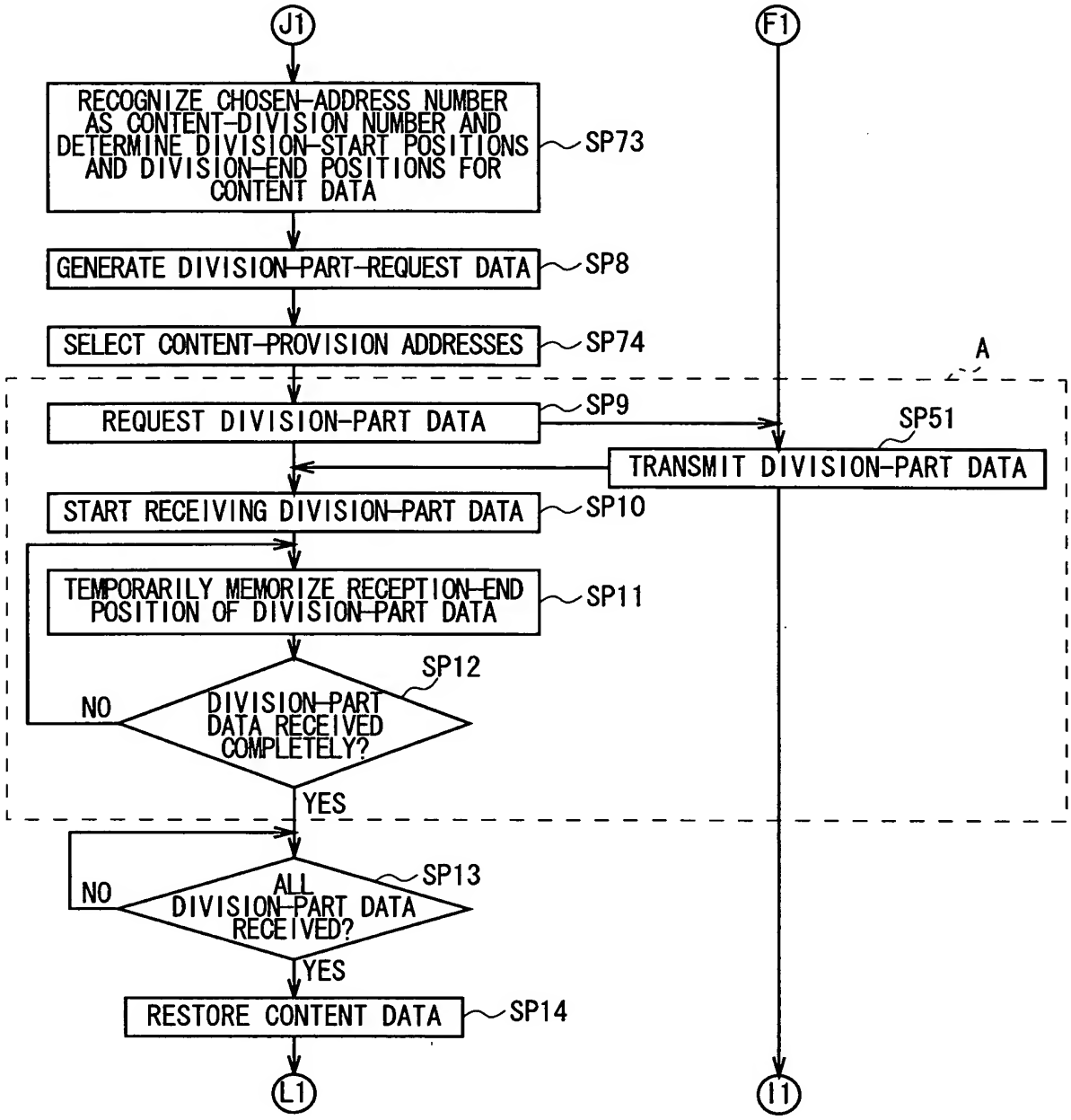
J1
F1
RECOGNIZE CHOSEN-ADDRESS NUMBER AS CONTENT-DIVISION NUMBER AND DETERMINE DIVISION-START POSITIONS AND DIVISION-END POSITIONS FOR CONTENT DATA
SP73
GENERATE DIVISION-PART-REQUEST DATA
SP8
SELECT CONTENT-PROVISION ADDRESSES
SP74
A
REQUEST DIVISION-PART DATA
SP9
SP51
TRANSMIT DIVISION-PART DATA
START RECEIVING DIVISION-PART DATA
SP10
TEMPORARILY MEMORIZE RECEPTION-END POSITION OF DIVISION-PART DATA
SP11
SP12
NO
DIVISION-PART DATA RECEIVED COMPLETELY?
YES
SP13
NO
ALL DIVISION-PART DATA RECEIVED?
YES
RESTORE CONTENT DATA
SP14
L1
I1

FIG. 16

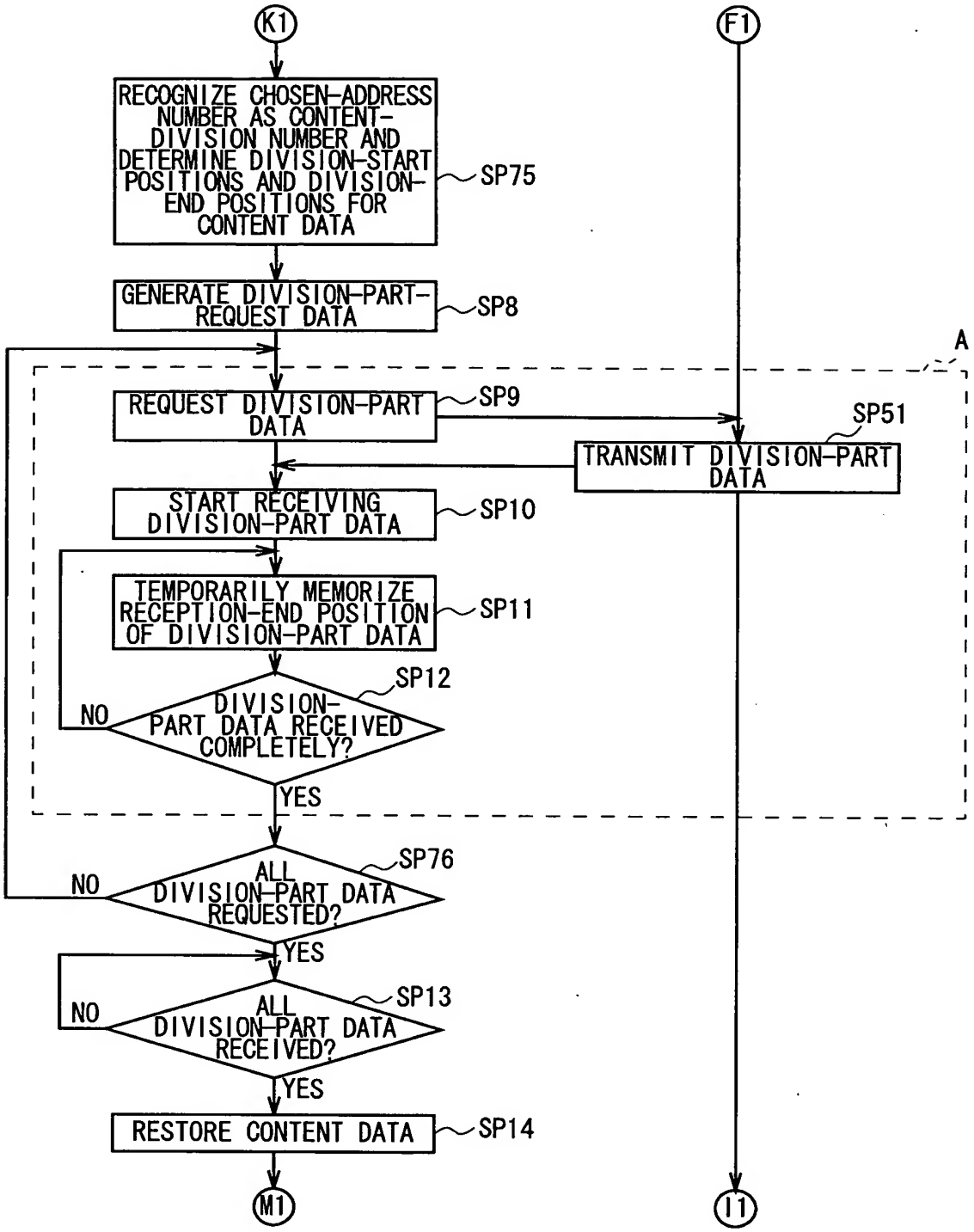
K1
RECOGNIZE CHOSEN-ADDRESS NUMBER AS CONTENT-DIVISION NUMBER AND DETERMINE DIVISION-START POSITIONS AND DIVISION-END POSITIONS FOR CONTENT DATA
SP75
GENERATE DIVISION-PART-REQUEST DATA
SP8
A
REQUEST DIVISION-PART DATA
SP9
F1
SP51
TRANSMIT DIVISION-PART DATA
START RECEIVING DIVISION-PART DATA
SP10
TEMPORARILY MEMORIZE RECEPTION-END POSITION OF DIVISION-PART DATA
SP11
SP12
DIVISION-PART DATA RECEIVED COMPLETELY?
NO
YES
SP76
ALL DIVISION-PART DATA REQUESTED?
NO
YES
SP13
ALL DIVISION-PART DATA RECEIVED?
NO
YES
RESTORE CONTENT DATA
SP14
M1
I1

FIG. 17

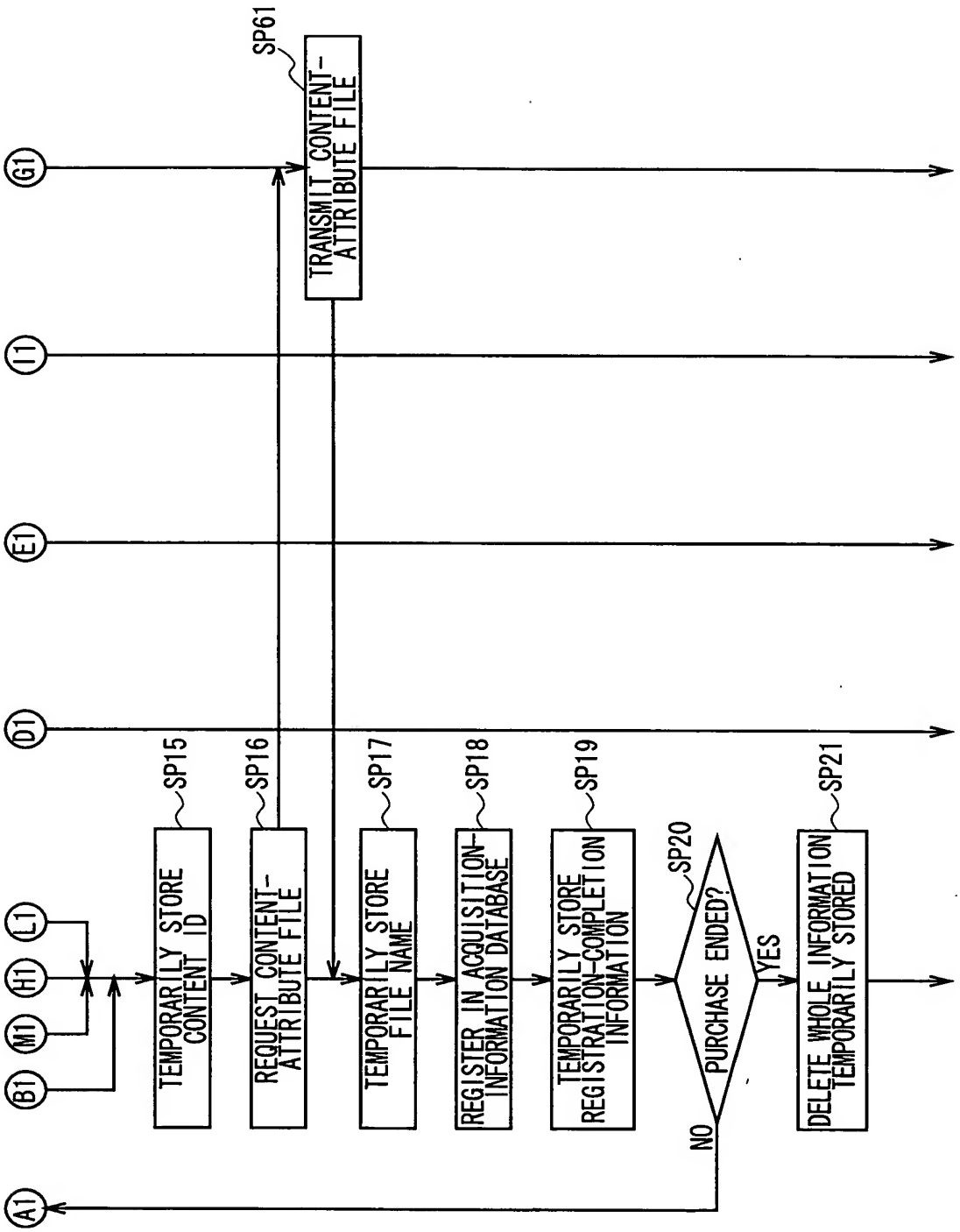
SP61
TRANSMIT CONTENT-ATTRIBUTE FILE
G1
I1
E1
D1
SP15
TEMPORARILY STORE CONTENT ID
SP16
REQUEST CONTENT-ATTRIBUTE FILE
SP17
TEMPORARILY STORE FILE NAME
SP18
REGISTER IN ACQUISITION-INFORMATION DATABASE
SP19
TEMPORARILY STORE REGISTRATION-COMPLETION INFORMATION
SP20
PURCHASE ENDED?
YES
NO
SP21
DELETE WHOLE INFORMATION TEMPORARILY STORED
L1
H1
M1
B1
A1

FIG. 18

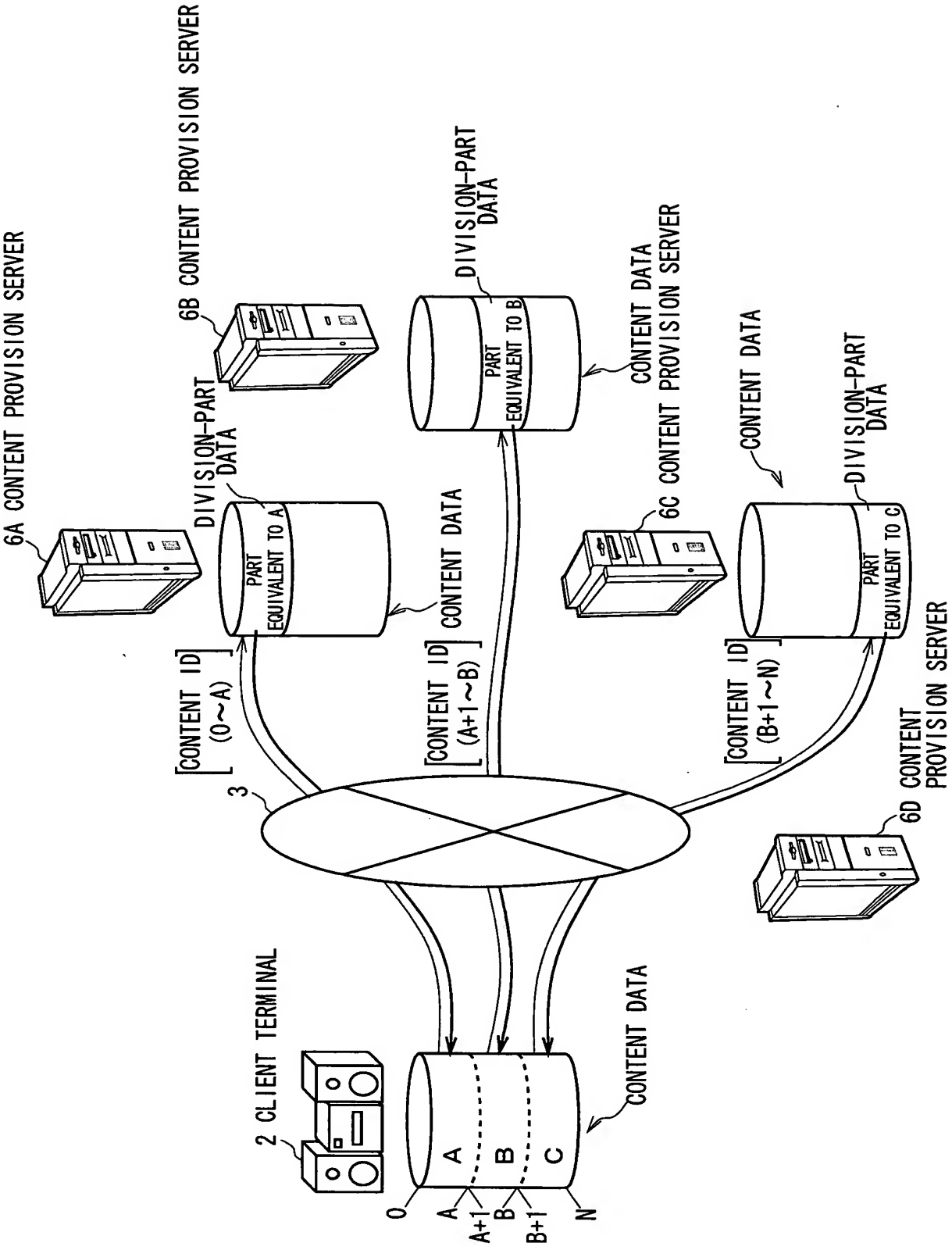
6A CONTENT PROVISION SERVER
6B CONTENT PROVISION SERVER
6C CONTENT PROVISION SERVER
6D CONTENT PROVISION SERVER
DIVISION-PART DATA
PART EQUIVALENT TO A
PART EQUIVALENT TO B
PART EQUIVALENT TO C
CONTENT DATA
[CONTENT ID (0~A)]
[CONTENT ID (A+1~B)]
[CONTENT ID (B+1~N)]
3
2 CLIENT TERMINAL
A
B
C
0
A+1
B+1
N

FIG. 19

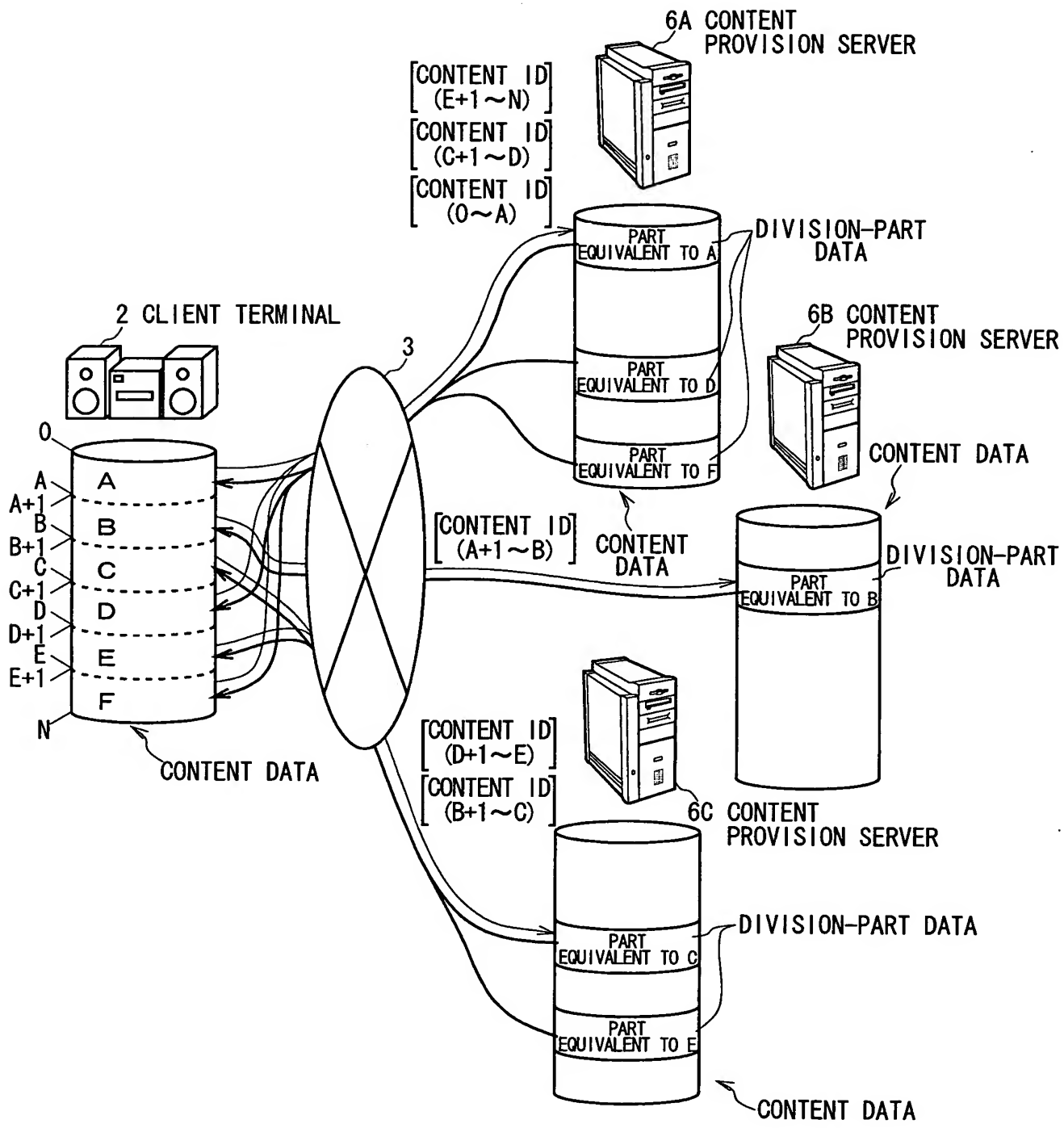
6A CONTENT PROVISION SERVER
[CONTENT ID (E+1～N)]
[CONTENT ID (C+1～D)]
[CONTENT ID (0～A)]
PART EQUIVALENT TO A
DIVISION-PART DATA
2 CLIENT TERMINAL
3
6B CONTENT PROVISION SERVER
PART EQUIVALENT TO D
PART EQUIVALENT TO F
CONTENT DATA
0
A
A+1
B
B+1
C
C+1
D
D+1
E
E+1
F
N
[CONTENT ID (A+1～B)]
CONTENT DATA
DIVISION-PART DATA
PART EQUIVALENT TO B
CONTENT DATA
[CONTENT ID (D+1～E)]
[CONTENT ID (B+1～C)]
6C CONTENT PROVISION SERVER
PART EQUIVALENT TO C
DIVISION-PART DATA
PART EQUIVALENT TO E
CONTENT DATA

FIG. 20

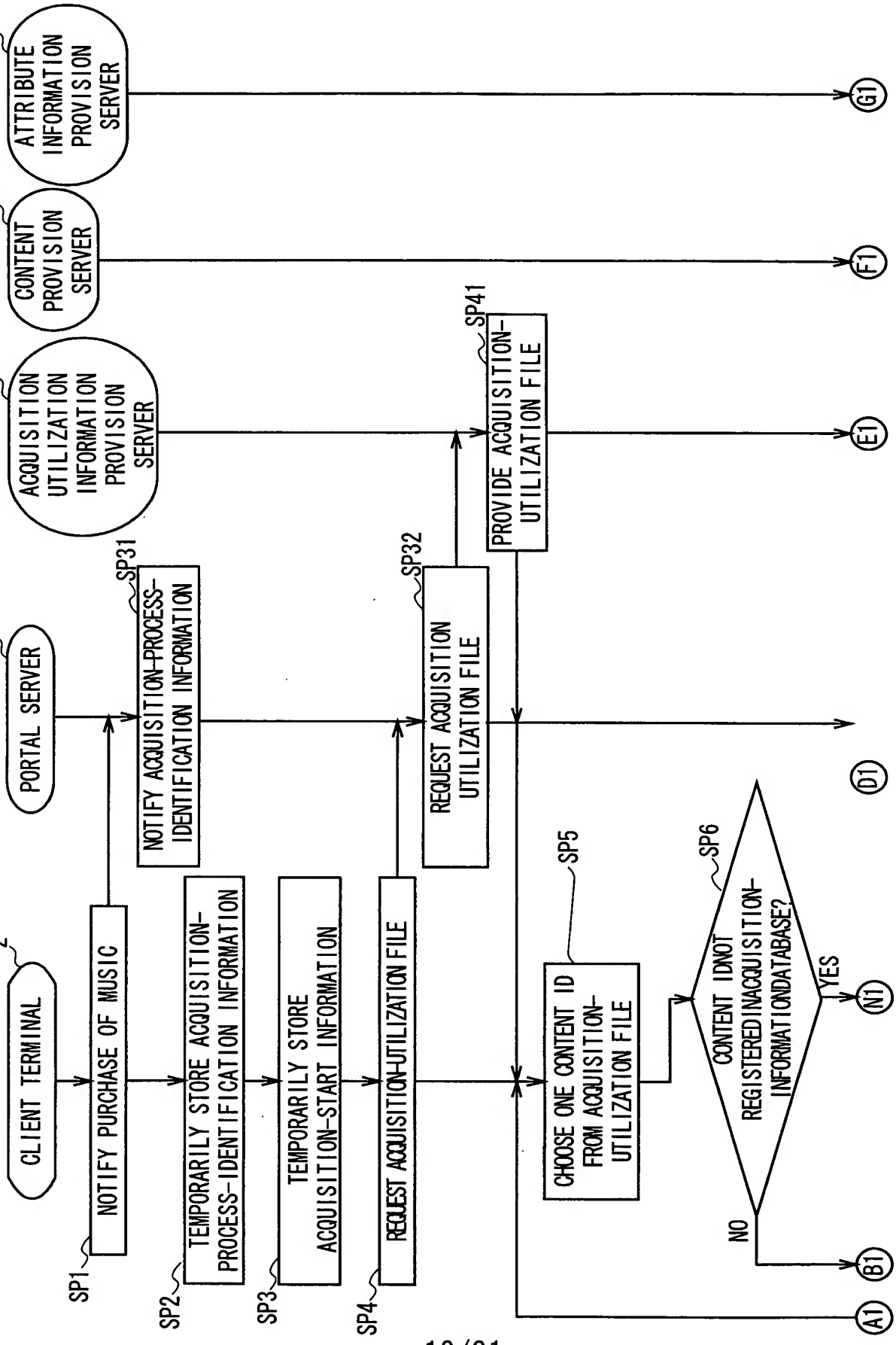
CLIENT TERMINAL
2
NOTIFY PURCHASE OF MUSIC
SP1
TEMPORARILY STORE ACQUISITION-PROCESS-IDENTIFICATION INFORMATION
SP2
TEMPORARILY STORE ACQUISITION-START INFORMATION
SP3
REQUEST ACQUISITION-UTILIZATION FILE
SP4
CHOOSE ONE CONTENT ID FROM ACQUISITION-UTILIZATION FILE
SP5
CONTENT ID NOT REGISTERED IN ACQUISITION-INFORMATION DATABASE?
SP6
YES
NO
N1
B1
A1
D1
PORTAL SERVER
4
NOTIFY ACQUISITION-PROCESS-IDENTIFICATION INFORMATION
SP31
REQUEST ACQUISITION UTILIZATION FILE
SP32
ACQUISITION UTILIZATION INFORMATION PROVISION SERVER
5
PROVIDE ACQUISITION-UTILIZATION FILE
SP41
E1
CONTENT PROVISION SERVER
6A
F1
ATTRIBUTE INFORMATION PROVISION SERVER
7
G1

FIG. 21

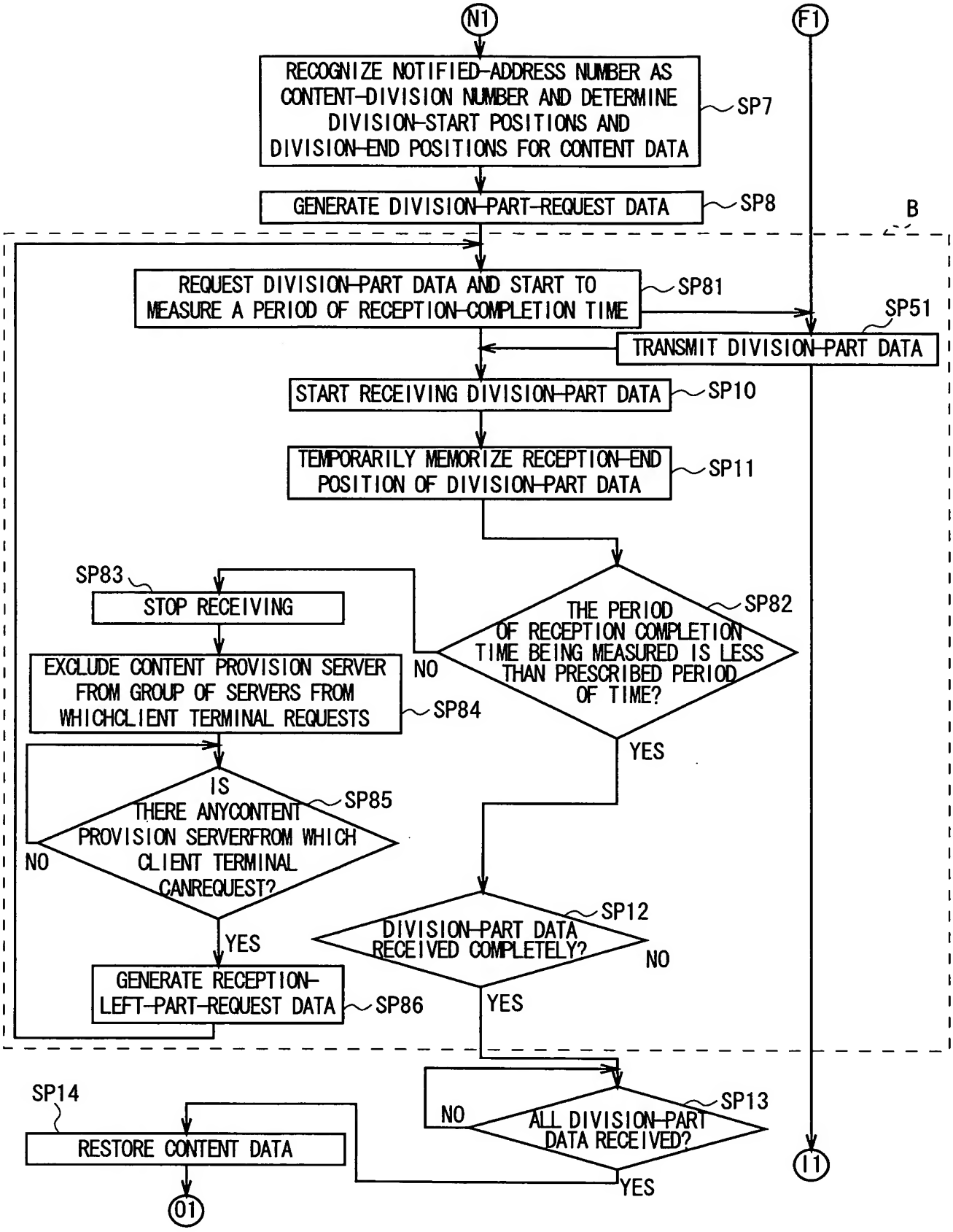
N1
F1
RECOGNIZE NOTIFIED-ADDRESS NUMBER AS CONTENT-DIVISION NUMBER AND DETERMINE DIVISION-START POSITIONS AND DIVISION-END POSITIONS FOR CONTENT DATA
SP7
GENERATE DIVISION-PART-REQUEST DATA
SP8
B
REQUEST DIVISION-PART DATA AND START TO MEASURE A PERIOD OF RECEPTION-COMPLETION TIME
SP81
SP51
TRANSMIT DIVISION-PART DATA
START RECEIVING DIVISION-PART DATA
SP10
TEMPORARILY MEMORIZE RECEPTION-END POSITION OF DIVISION-PART DATA
SP11
SP83
STOP RECEIVING
THE PERIOD OF RECEPTION COMPLETION TIME BEING MEASURED IS LESS THAN PRESCRIBED PERIOD OF TIME?
SP82
NO
EXCLUDE CONTENT PROVISION SERVER FROM GROUP OF SERVERS FROM WHICHCLIENT TERMINAL REQUESTS
SP84
YES
IS THERE ANYCONTENT PROVISION SERVERFROM WHICH CLIENT TERMINAL CANREQUEST?
SP85
NO
YES
DIVISION-PART DATA RECEIVED COMPLETELY?
SP12
NO
YES
GENERATE RECEPTION-LEFT-PART-REQUEST DATA
SP86
SP14
NO
ALL DIVISION-PART DATA RECEIVED?
SP13
YES
RESTORE CONTENT DATA
I1
01

FIG. 22

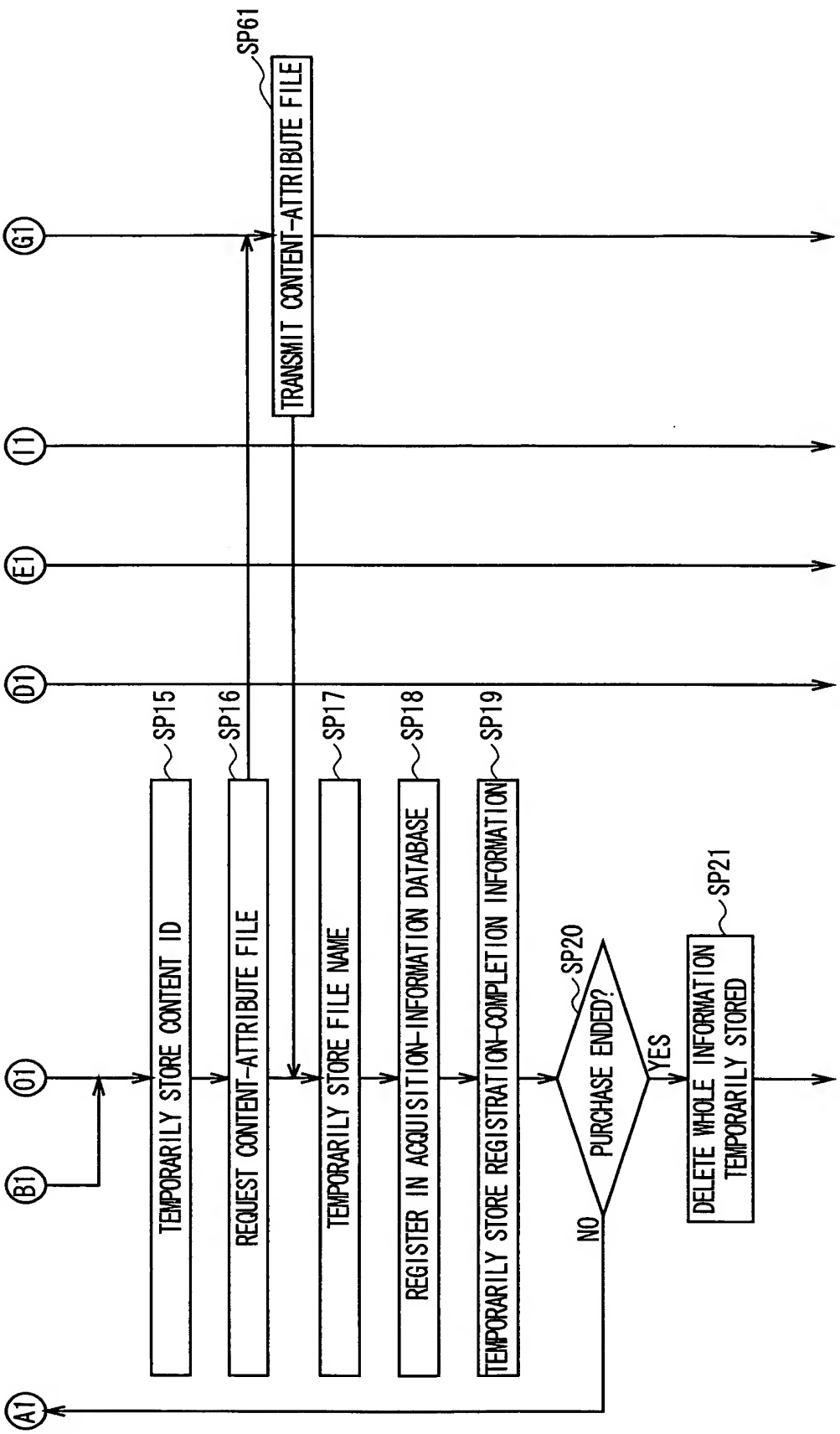
SP61
TRANSMIT CONTENT-ATTRIBUTE FILE
G1
I1
E1
O1
SP15
SP16
SP17
SP18
SP19
TEMPORARILY STORE CONTENT ID
REQUEST CONTENT-ATTRIBUTE FILE
TEMPORARILY STORE FILE NAME
REGISTER IN ACQUISITION-INFORMATION DATABASE
TEMPORARILY STORE REGISTRATION-COMPLETION INFORMATION
O1
B1
SP20
PURCHASE ENDED?
YES
NO
SP21
DELETE WHOLE INFORMATION TEMPORARILY STORED
A1

FIG. 23

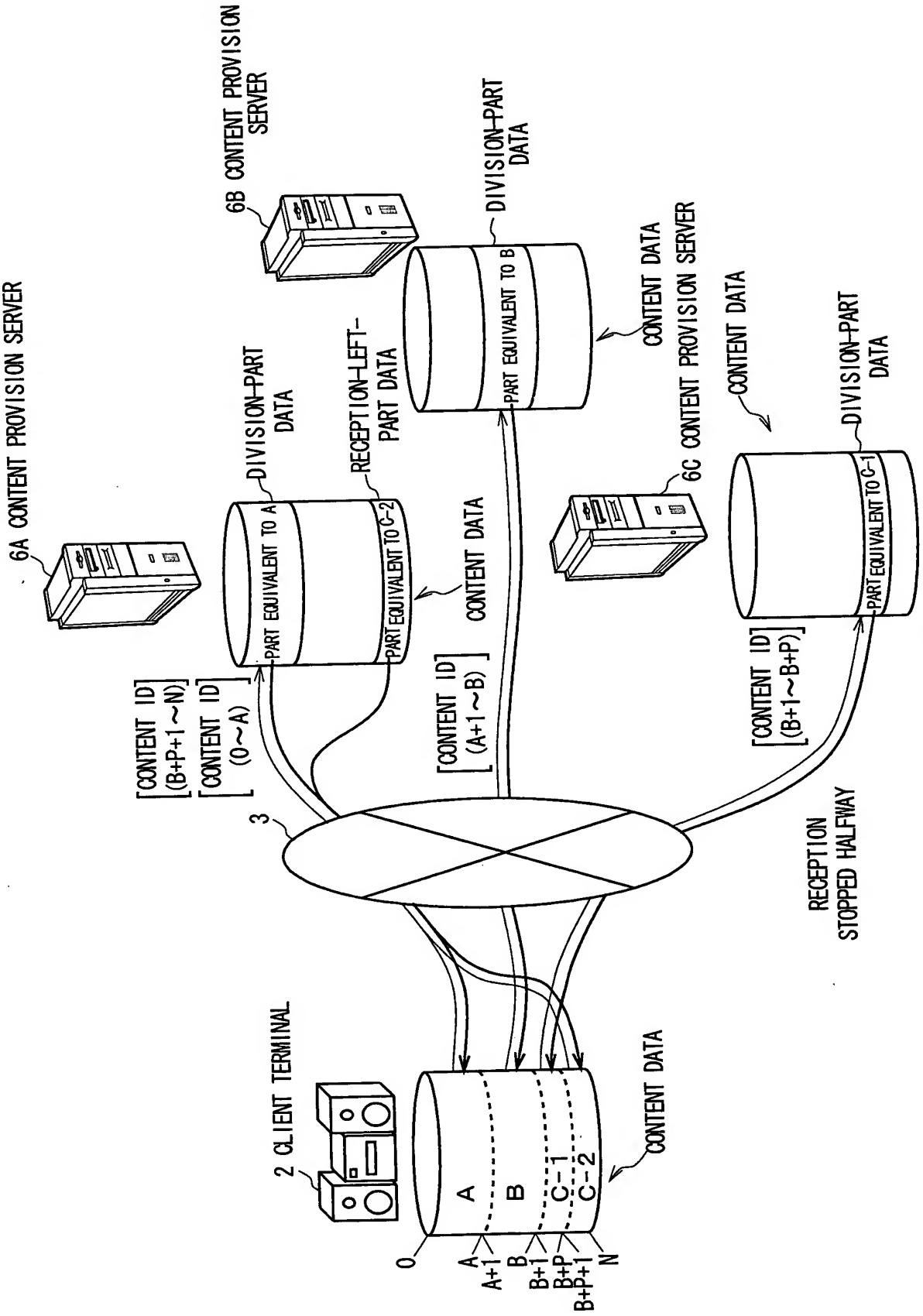
6A CONTENT PROVISION SERVER
6B CONTENT PROVISION SERVER
6C CONTENT PROVISION SERVER
DIVISION-PART DATA
RECEPTION-LEFT-PART DATA
CONTENT DATA
PART EQUIVALENT TO A
PART EQUIVALENT TO B
PART EQUIVALENT TO C-1
PART EQUIVALENT TO C-2
[CONTENT ID (0~A)]
[CONTENT ID (B+P+1~N)]
[CONTENT ID (A+1~B)]
[CONTENT ID (B+1~B+P)]
3
RECEPTION STOPPED HALFWAY
2 CLIENT TERMINAL
A
B
C-1
C-2
0
A
A+1
B
B+1
B+P
B+P+1
N

FIG. 24

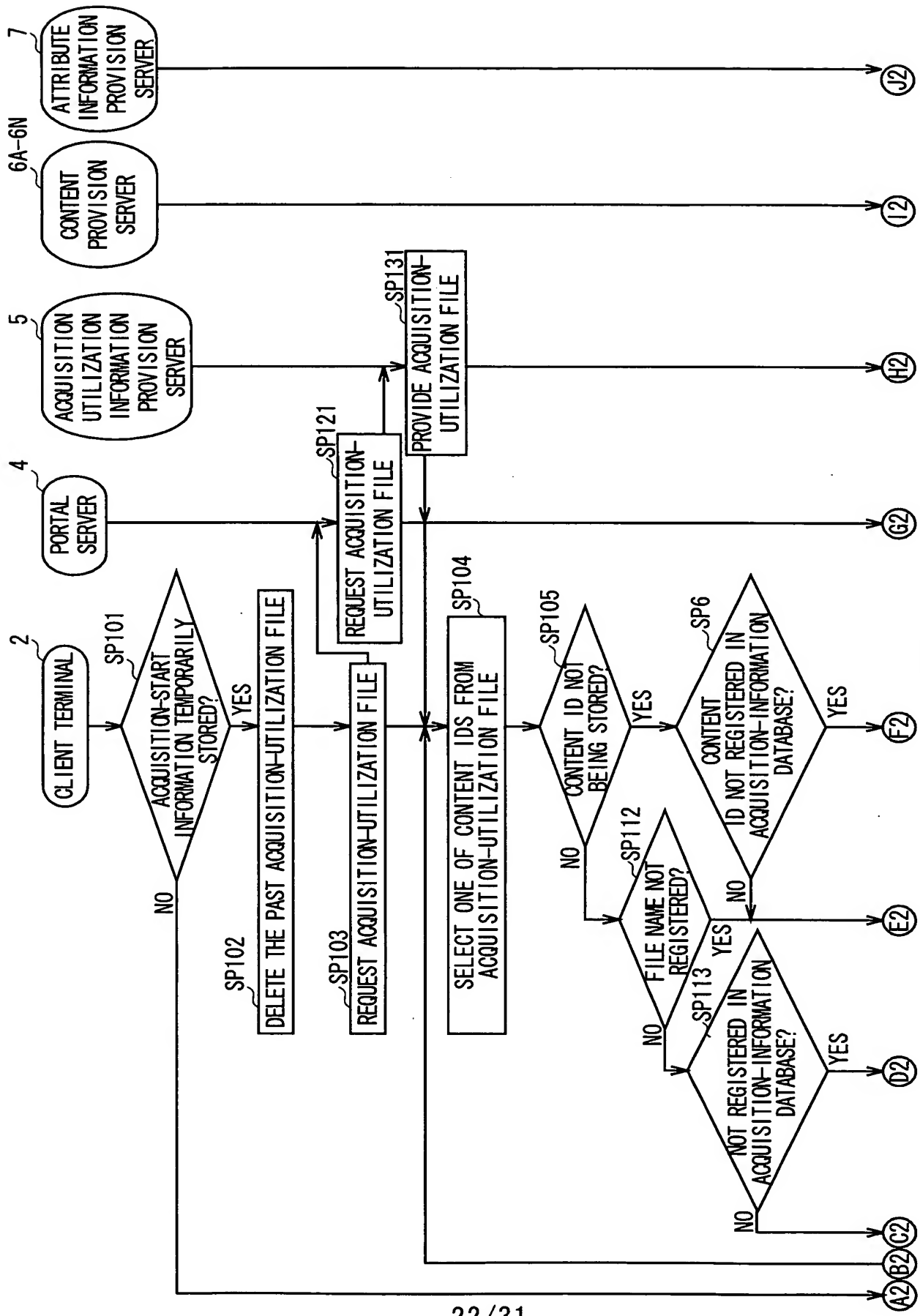
2
CLIENT TERMINAL
SP101
ACQUISITION-START INFORMATION TEMPORARILY STORED?
YES
NO
SP102
DELETE THE PAST ACQUISITION-UTILIZATION FILE
SP103
REQUEST ACQUISITION-UTILIZATION FILE
4
PORTAL SERVER
SP121
REQUEST ACQUISITION-UTILIZATION FILE
5
ACQUISITION UTILIZATION INFORMATION PROVISION SERVER
SP131
PROVIDE ACQUISITION-UTILIZATION FILE
6A-6N
CONTENT PROVISION SERVER
7
ATTRIBUTE INFORMATION PROVISION SERVER
SP104
SELECT ONE OF CONTENT IDS FROM ACQUISITION-UTILIZATION FILE
SP105
CONTENT ID NOT BEING STORED?
YES
NO
SP6
CONTENT ID NOT REGISTERED IN ACQUISITION-INFORMATION DATABASE?
YES
NO
SP112
FILE NAME NOT REGISTERED?
YES
NO
SP113
NOT REGISTERED IN ACQUISITION-INFORMATION DATABASE?
YES
NO
A2
B2
C2
D2
E2
F2
G2
H2
I2
J2

FIG. 25

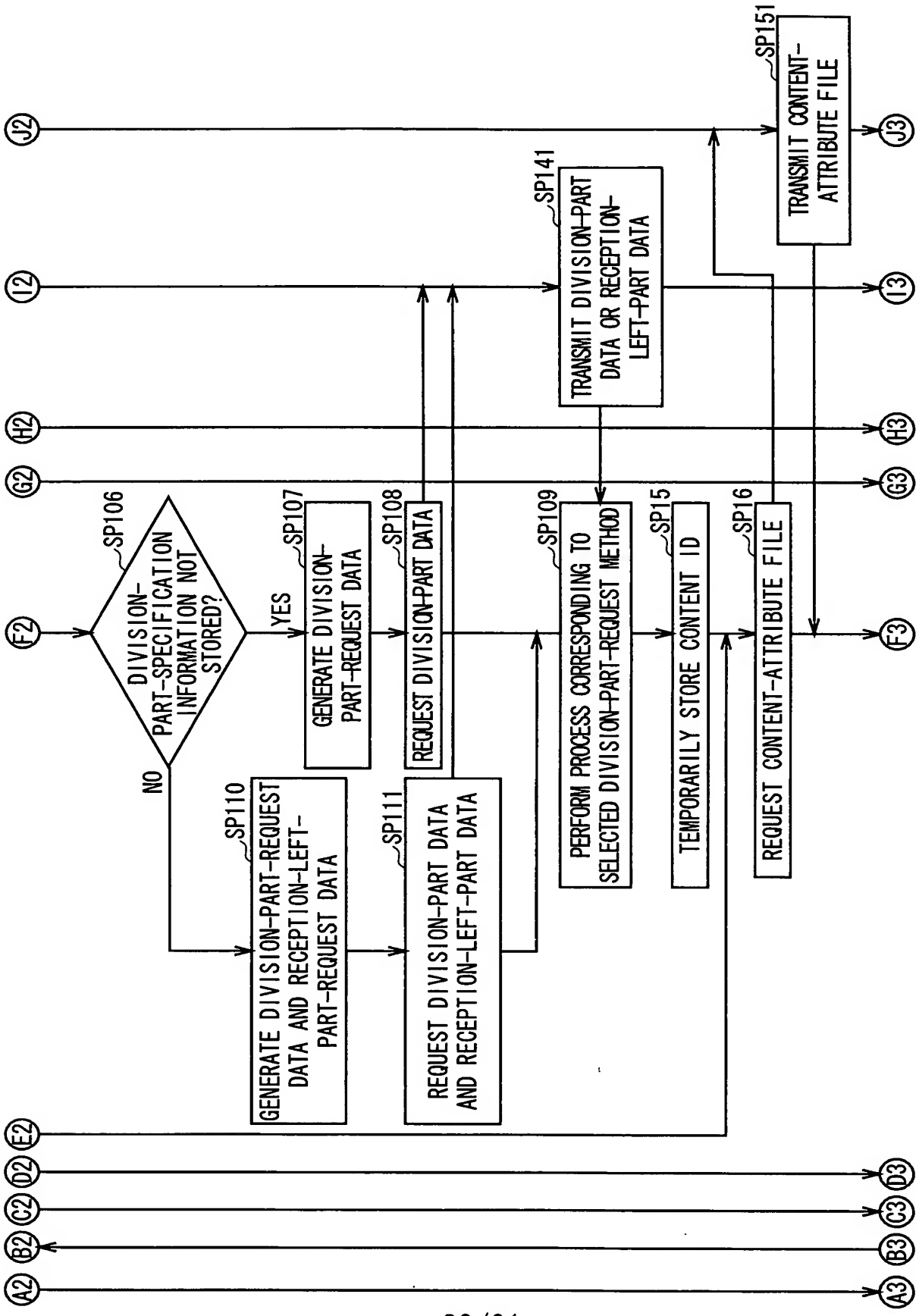
J2
SP151
TRANSMIT CONTENT-ATTRIBUTE FILE
J3
I2
SP141
TRANSMIT DIVISION-PART DATA OR RECEPTION-LEFT-PART DATA
I3
H2
H3
G2
G3
F2
SP106
DIVISION-PART-SPECIFICATION INFORMATION NOT STORED?
YES
SP107
GENERATE DIVISION-PART-REQUEST DATA
SP108
REQUEST DIVISION-PART DATA
SP109
PERFORM PROCESS CORRESPONDING TO SELECTED DIVISION-PART-REQUEST METHOD
SP15
TEMPORARILY STORE CONTENT ID
SP16
REQUEST CONTENT-ATTRIBUTE FILE
F3
NO
SP110
GENERATE DIVISION-PART-REQUEST DATA AND RECEPTION-LEFT-PART-REQUEST DATA
SP111
REQUEST DIVISION-PART DATA AND RECEPTION-LEFT-PART DATA
E2
D2
D3
C2
C3
B2
B3
A2
A3

FIG. 26

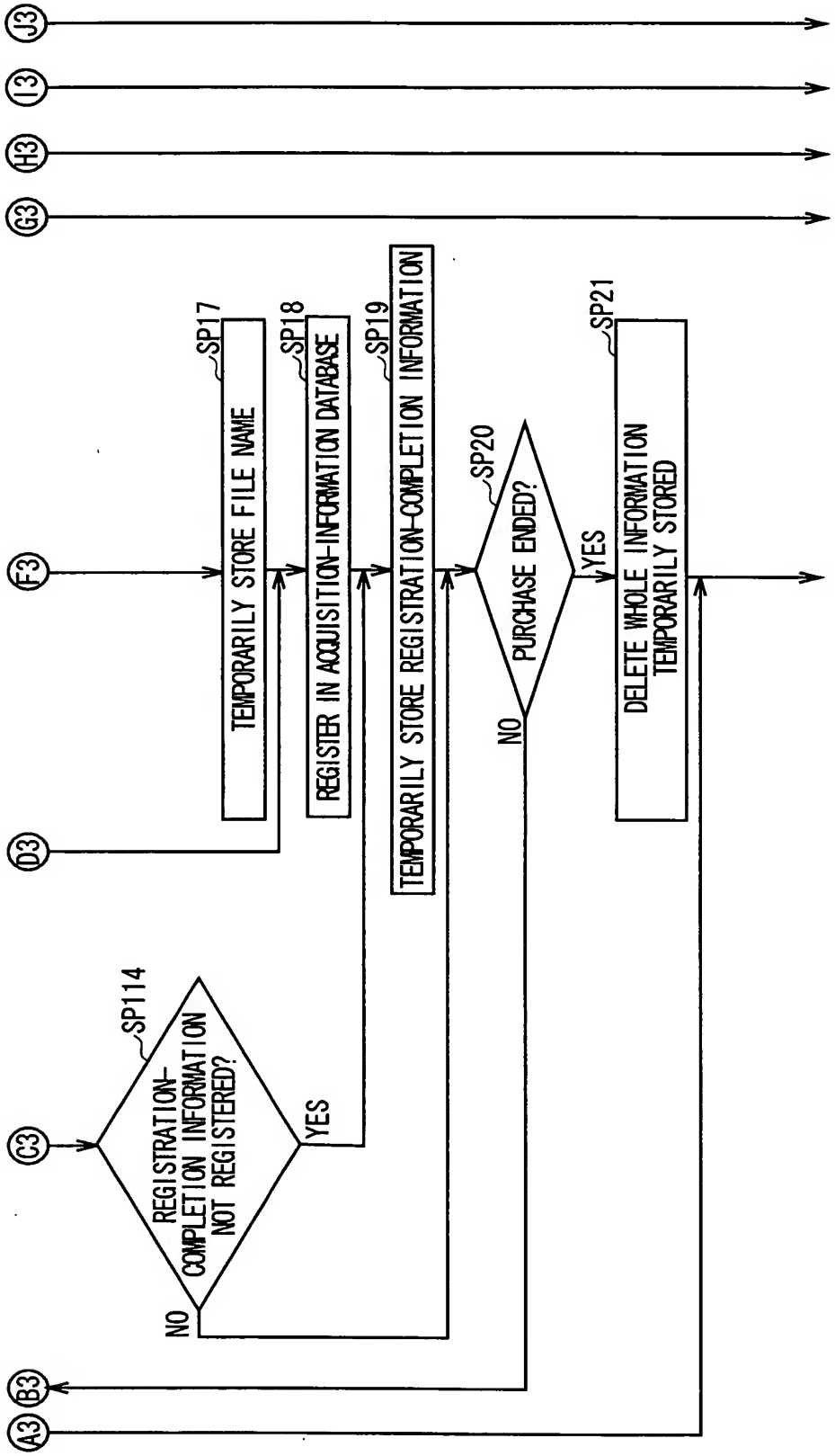
J3
I3
H3
G3
SP17
TEMPORARILY STORE FILE NAME
SP18
REGISTER IN ACQUISITION-INFORMATION DATABASE
SP19
TEMPORARILY STORE REGISTRATION-COMPLETION INFORMATION
SP20
PURCHASE ENDED?
YES
NO
SP21
DELETE WHOLE INFORMATION TEMPORARILY STORED
F3
D3
C3
SP114
REGISTRATION-COMPLETION INFORMATION NOT REGISTERED?
YES
NO
B3
A3

FIG. 27

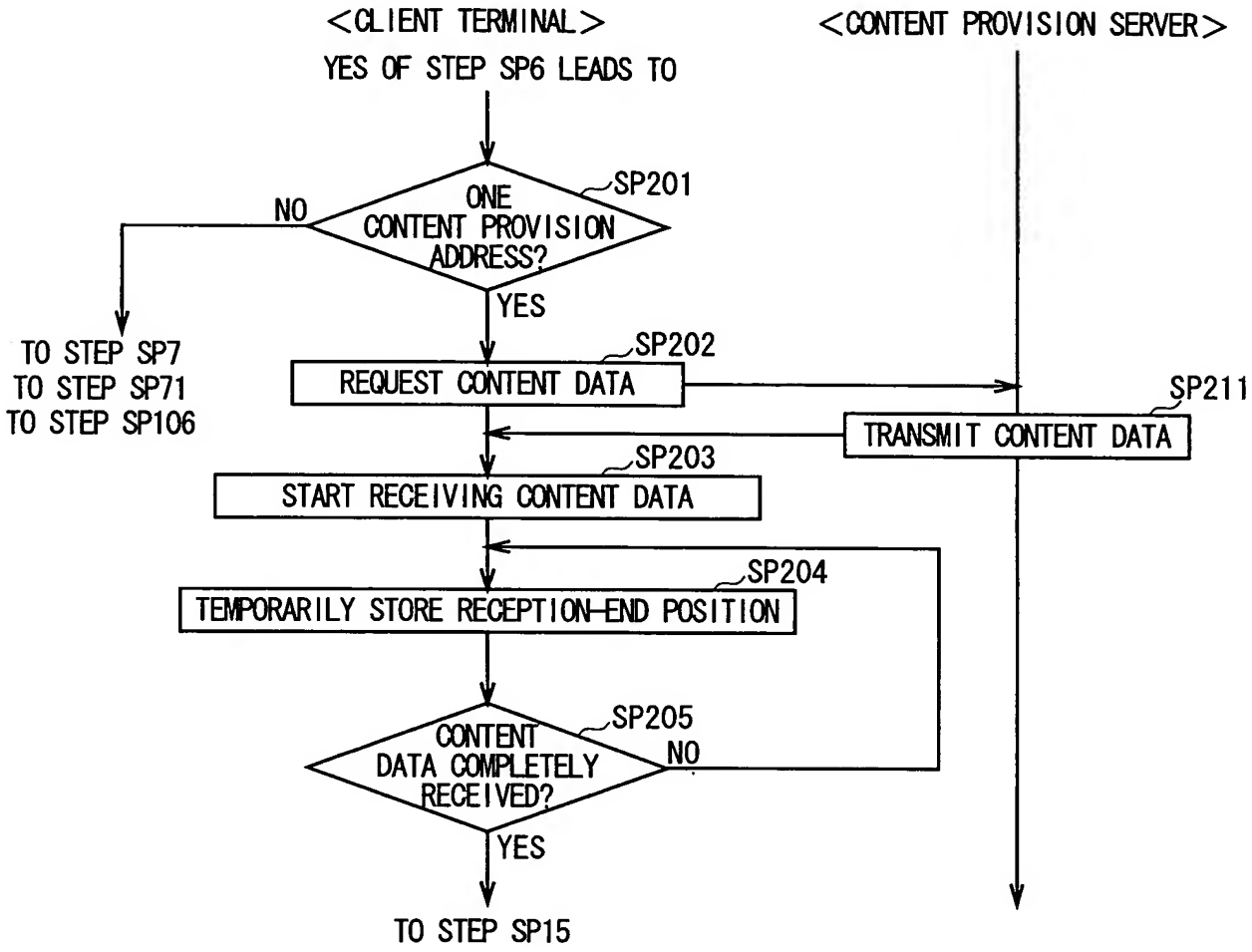
<CLIENT TERMINAL>
<CONTENT PROVISION SERVER>
YES OF STEP SP6 LEADS TO
SP201
ONE CONTENT PROVISION ADDRESS?
NO
YES
TO STEP SP7
TO STEP SP71
TO STEP SP106
SP202
REQUEST CONTENT DATA
SP211
TRANSMIT CONTENT DATA
SP203
START RECEIVING CONTENT DATA
SP204
TEMPORARILY STORE RECEPTION-END POSITION
SP205
CONTENT DATA COMPLETELY RECEIVED?
NO
YES
TO STEP SP15

FIG. 28

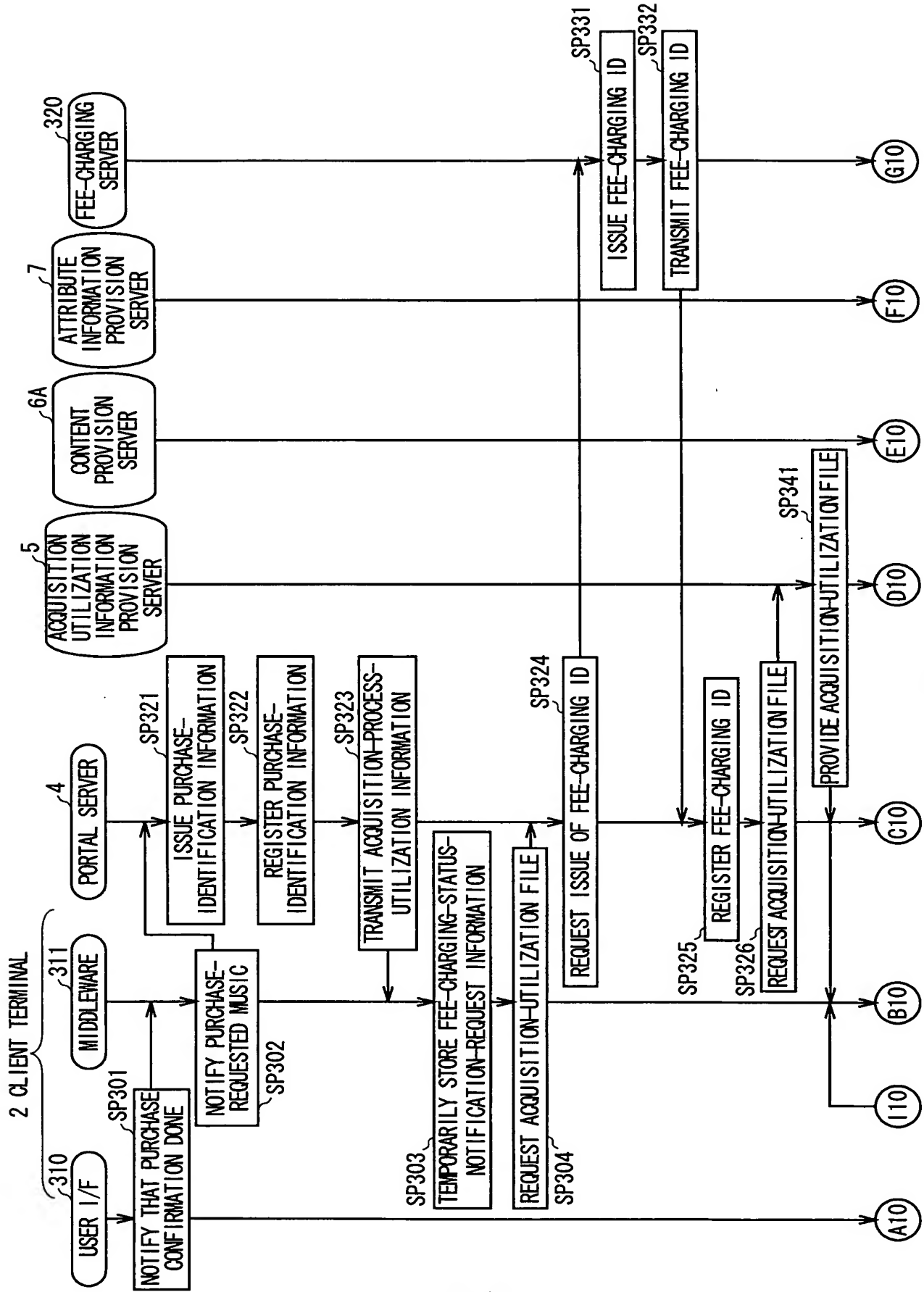
2 CLIENT TERMINAL
310
USER I/F
311
MIDDLEWARE
4
PORTAL SERVER
5
ACQUISITION UTILIZATION INFORMATION PROVISION SERVER
6A
CONTENT PROVISION SERVER
7
ATTRIBUTE INFORMATION PROVISION SERVER
320
FEE-CHARGING SERVER
SP301
NOTIFY THAT PURCHASE CONFIRMATION DONE
SP302
NOTIFY PURCHASE-REQUESTED MUSIC
SP303
TEMPORARILY STORE FEE-CHARGING-STATUS-NOTIFICATION-REQUEST INFORMATION
SP304
REQUEST ACQUISITION-UTILIZATION FILE
SP321
ISSUE PURCHASE-IDENTIFICATION INFORMATION
SP322
REGISTER PURCHASE-IDENTIFICATION INFORMATION
SP323
TRANSMIT ACQUISITION-PROCESS-UTILIZATION INFORMATION
SP324
REQUEST ISSUE OF FEE-CHARGING ID
SP325
REGISTER FEE-CHARGING ID
SP326
REQUEST ACQUISITION-UTILIZATION FILE
SP331
ISSUE FEE-CHARGING ID
SP332
TRANSMIT FEE-CHARGING ID
SP341
PROVIDE ACQUISITION-UTILIZATION FILE
A10
B10
C10
D10
E10
F10
G10
I10

FIG. 29

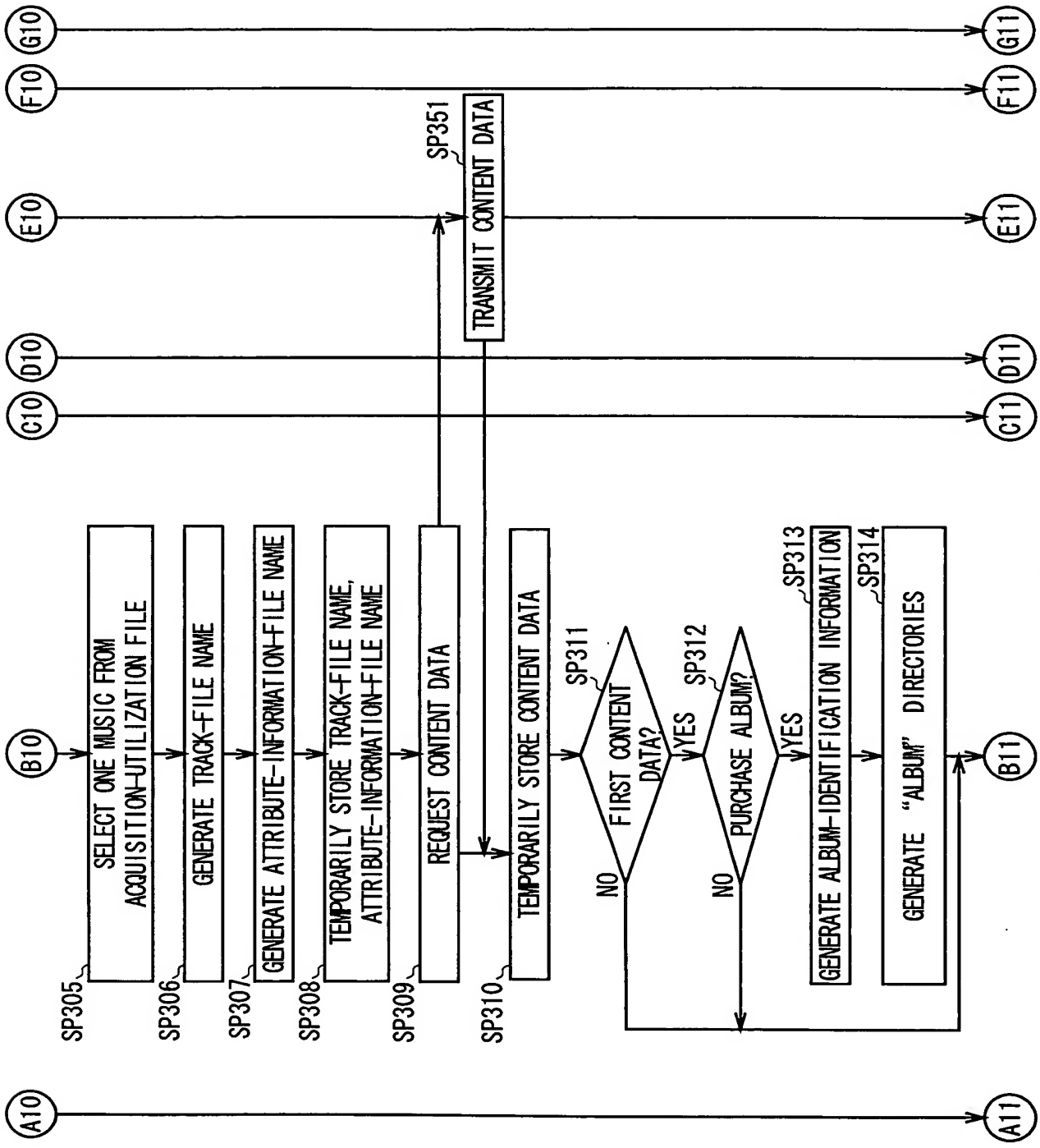
A10
A11
B10
B11
C10
C11
D10
D11
E10
E11
F10
F11
G10
G11
SELECT ONE MUSIC FROM ACQUISITION-UTILIZATION FILE
GENERATE TRACK-FILE NAME
GENERATE ATTRIBUTE-INFORMATION-FILE NAME
TEMPORARILY STORE TRACK-FILE NAME, ATTRIBUTE-INFORMATION-FILE NAME
REQUEST CONTENT DATA
TEMPORARILY STORE CONTENT DATA
FIRST CONTENT DATA?
PURCHASE ALBUM?
GENERATE ALBUM-IDENTIFICATION INFORMATION
GENERATE "ALBUM" DIRECTORIES
TRANSMIT CONTENT DATA
YES
NO
YES
NO
SP305
SP306
SP307
SP308
SP309
SP310
SP311
SP312
SP313
SP314
SP351

FIG. 30

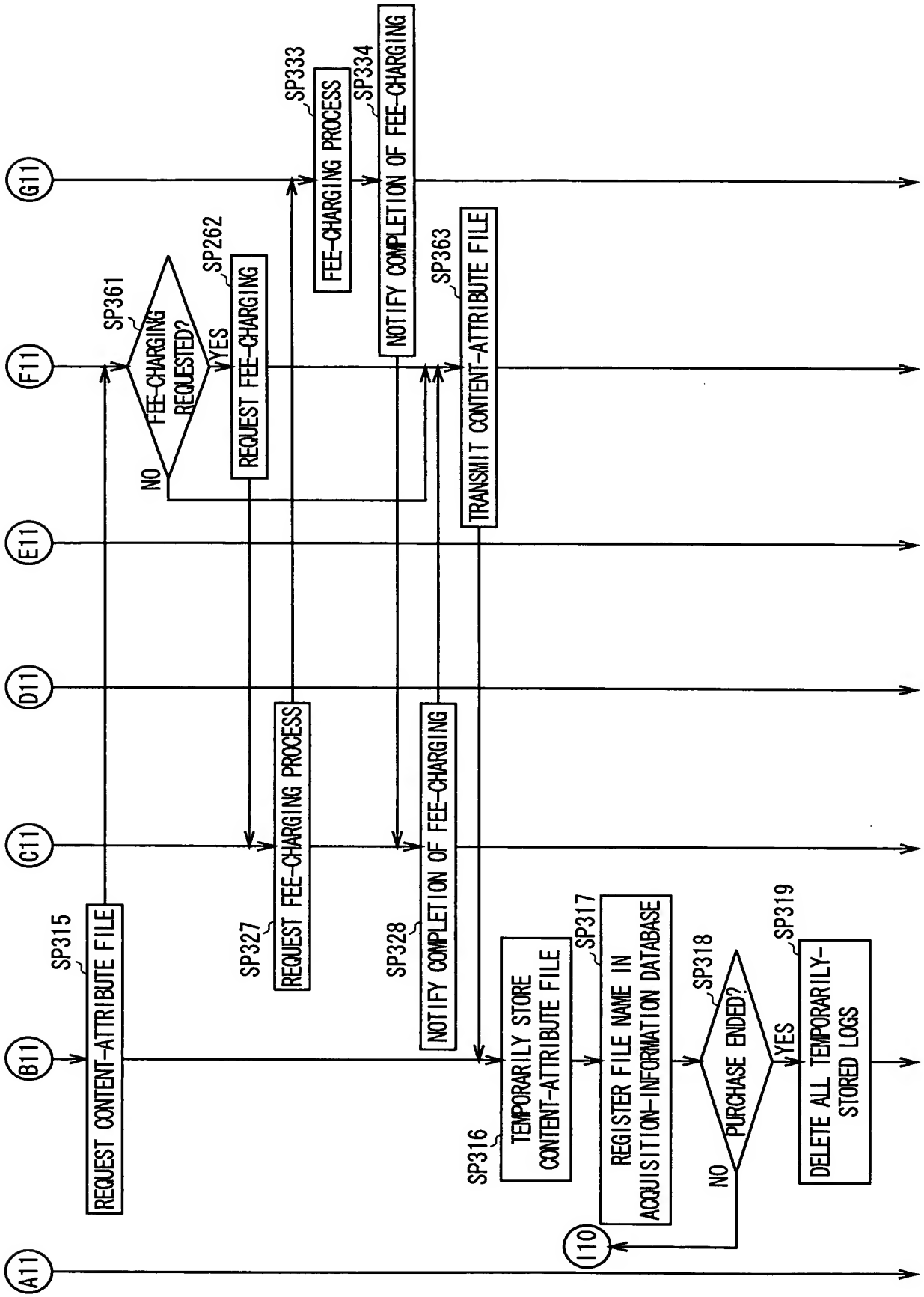
A11
B11
C11
D11
E11
F11
G11
I10
REQUEST CONTENT-ATTRIBUTE FILE
SP315
FEE-CHARGING REQUESTED?
SP361
YES
NO
REQUEST FEE-CHARGING
SP262
REQUEST FEE-CHARGING PROCESS
SP327
FEE-CHARGING PROCESS
SP333
NOTIFY COMPLETION OF FEE-CHARGING
SP328
NOTIFY COMPLETION OF FEE-CHARGING
SP334
TRANSMIT CONTENT-ATTRIBUTE FILE
SP363
TEMPORARILY STORE CONTENT-ATTRIBUTE FILE
SP316
REGISTER FILE NAME IN ACQUISITION-INFORMATION DATABASE
SP317
PURCHASE ENDED?
SP318
YES
NO
DELETE ALL TEMPORARILY-STORED LOGS
SP319

FIG. 31

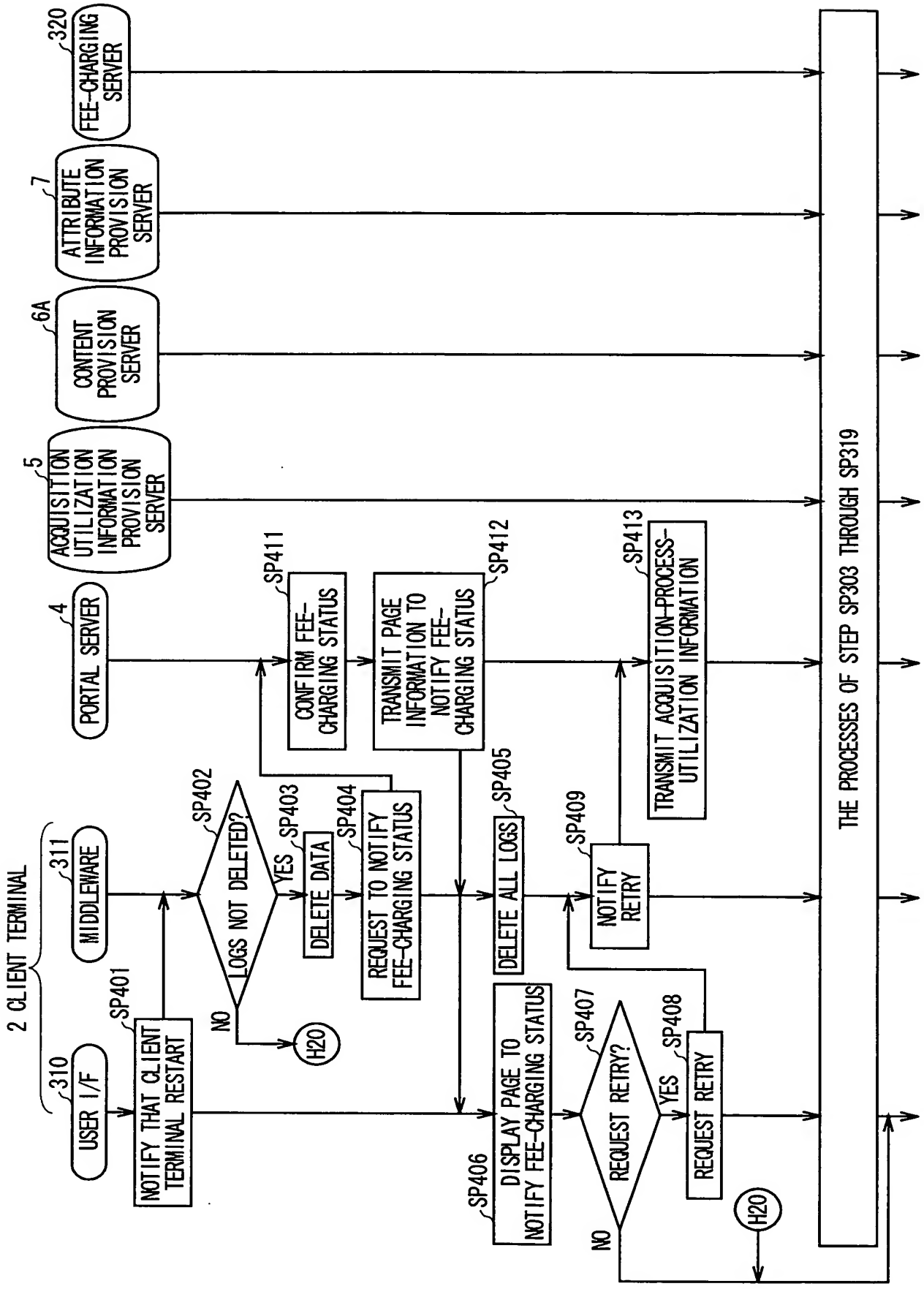
2 CLIENT TERMINAL
310
USER I/F
311
MIDDLEWARE
4
PORTAL SERVER
5
ACQUISITION UTILIZATION INFORMATION PROVISION SERVER
6A
CONTENT PROVISION SERVER
7
ATTRIBUTE INFORMATION PROVISION SERVER
320
FEE-CHARGING SERVER
SP401
NOTIFY THAT CLIENT TERMINAL RESTART
SP402
LOGS NOT DELETED?
YES
NO
SP403
DELETE DATA
SP404
REQUEST TO NOTIFY FEE-CHARGING STATUS
SP405
DELETE ALL LOGS
SP406
DISPLAY PAGE TO NOTIFY FEE-CHARGING STATUS
SP407
REQUEST RETRY?
YES
NO
SP408
REQUEST RETRY
SP409
NOTIFY RETRY
SP411
CONFIRM FEE-CHARGING STATUS
SP412
TRANSMIT PAGE INFORMATION TO NOTIFY FEE-CHARGING STATUS
SP413
TRANSMIT ACQUISITION-PROCESS-UTILIZATION INFORMATION
H20
H20
THE PROCESSES OF STEP SP303 THROUGH SP319

FIG. 32

315 ACQUISITION-UTILIZATION FILE

| CONTENT-ACQUISITION ADDRESS |
| --- |
| ATTRIBUTE-FILE-ACQUISITION ADDRESS |

FIG. 33

| | | |
| --- | --- | --- |
| FIRST LOG | FEE-CHARGING-STATUS-NOTIFICATION-REQUEST INFORMATION | PURCHASE-IDENTIFICATION INFORMATION<br>RETRY ADDRESS<br>POST DATA<br>REQUEST CODE |
| SECOND LOG | TRACK-FILE NAME<br>ATTRIBUTE-INFORMATION-FILE NAME | |
| THIRD LOG | ALBUM-IDENTIFICATION INFORMATION | |

FIG. 34

DESCRIPTION OF SYMBOLS

1...DATA DELIVERY SYSTEM, 2...CLIENT TERMINAL, 5...ACQUISITION UTILIZATIONINFORMATION PROVISION SERVER, 6A-6N...CONTENT PROVISION SERVER, 25, 315...ACQUISITION-UTILIZATION FILE, 30...CONTROL SECTION, 34...DATA COMMUNICATION PROCESSING SECTION, 100...CPU, 102...ROM, 104...HARD DISK DRIVE, 114...COMMUNICATION PROCESSING SECTION, 115...NETWORK INTERFACE, 130...HTTP MESSAGE PROGRAM, 131...COMMUNICATOR PROGRAM, 113...COPYRIGHT PROTECTION INFORMATION MANAGEMENT MODULE, 135...MUSIC PURCHASE/REPRODUCTION MODULE, 136...XML BROWSER, 137...HARD DISK CONTENT CONTROLLER, 139...DATABASE ACCESS MODULE, 140...CONTENT DATA ACCESS MODULE, 310...USER INTERFACE, 311...MIDDLEWARE